National Aeronautics and
Space Administration

JOHNSON SPACE CENTER

Mission X: Train Like An Astronaut

INTERNATIONAL FITNESS CHALLENGE

2012 ANNUAL REPORT

15 COUNTRIES
13 LANGUAGES
11 SPACE AGENCIES
9846 STUDENTS
286 TEAMS
1 MISSION

EXECUTIVE SUMMARY

There is a strong correlation between an unhealthy childhood diet, adolescent fitness and the onset of chronic diseases as an adult. The Mission X: Train Like an Astronaut Challenge was developed to encourage proper exercise and nutrition at an early age by teaching young people to live and eat like space explorers.

The Mission X: Train Like an Astronaut 2012 (MX12) world-wide challenge hosted 9,846 children from 286 teams, 15 countries and 11 space agencies, and featured one mission dedicated to assisting youth on a global scale to live healthier lifestyles and learn about human space exploration. The MX12 website included 13 languages.

MX12, the first of three international fitness challenges that make up the MX multi-year campaign, was sponsored by the Human Research Program. In comparison to the MX11 pilot, MX12 expanded to include three new countries, added five new languages and more than doubled the number of students and teams that participated in the challenge.

MX12 also saw greater participation by the space agencies in the coordination and implementation of programs and events, addressed point system concerns, and added training videos, a training webinar and a pilot survey. Four countries participated in the pilot survey with a total of 1,164 surveys collected and analyzed. With modifications to the pilot questions, the MX survey will be offered to all participants in future years.

New to MX12 was the International Closing Event, hosted by the United Kingdom (UK) Space Agency in London, England, which was attended by 12 of the 15 participating countries. In addition to the attendees, a public outreach video podcast of the event on NASA EDGE had over 500,000 downloads during the first four-month posting (*http://www.nasa.gov/multimedia/podcasting/nasaedge/NE00051912_33_MissionX_2012.html*).

As the planning for Mission X 2013 (MX13) begins, areas for improvement include to establish and release the overall schedule for the challenge before the end of the calendar year, provide participants earlier access to the website and MX Facebook page, and extend the length of the challenge phase to nine weeks. MX13 improvements already in development are 1) automated registration, 2) new content for the program developed by the MX international educator working group, 3) e-badges, 4) MX survey assessment available to all participants, 5) release dates of the major milestones for events through the MX13 International Closing Event, and 6) expanded leader resources. Go Mission X!

ACKNOWLEDGEMENTS

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NASA EDGE

Newham Leisure Centre

NHS East London Olympic Legacy Team

Olympic Heroes

Out of This World Learning

Queen Mary University of London

Royal Aeronautical Society

Royal Observatory Greenwich

University of East London

TABLE OF CONTENTS

INTRODUCTION

Physical inactivity and unhealthy eating habits are the two most pronounced and profound health risks that experts believe lead to major non-communicable diseases, such as hypertension, cardiovascular disease and type-2 diabetes. Extensive research generated from the USA, Spain, Russia, Japan and Great Britain, among others, demonstrates that obesity and the lack of physical exercise are a serious cause for global concern. Studies suggest that there is a strong correlation between an unhealthy childhood diet, poor adolescent fitness and the onset of chronic diseases as an adult. In many nations, efforts are underway to combat these problems by increasing physical activity during and after school, encouraging diets with less saturated fat and more fruits and vegetables, and minimizing television viewing hours. (For more detailed information regarding this research please see Appendix A: Resource List.)

In light of these increasing global health issues and with an understanding of the actions needed to overcome them, the Mission X: Train Like an Astronaut Challenge was developed to promote proper exercise and nutrition at an early age by encouraging young people to live and eat like space explorers. It is a collaborative effort between international partners and students that provides children and teachers with extensive information developed to be both fun and interactive. Utilizing the International Space Station (ISS) as a venue for international collaboration, the project promotes healthier, more active lifestyles by demonstrating to children how astronauts stay fit prior to and during spaceflight.

Specifically, the goals of Mission X: Train Like an Astronaut are to:

- Generate global interest in space exploration and promote awareness of the importance of physical fitness and good health.
- Enhance awareness of the educational and outreach content provided by the ISS partners.
- Perform international outreach activities, such as using downlinks with ISS astronauts.
- Expand mutual understanding of the process needed to execute a multi-national educational outreach effort.
- Create an internet-based distribution of health and fitness educational materials.

In summary, Mission X challenges students to be more physically active, increases awareness of the importance of lifelong health and conditioning, teaches students how fitness plays a vital role in human performance for exploration, supports the development of scientific reasoning, and, hopes to inspire and motivate students to pursue careers in science, technology, engineering and mathematics (STEM).






CURRENT STATUS OF THE PROGRAM

The Mission X 2011 Pilot Study was a global project to promote and inspire healthy lifestyles among young people by showing how astronauts stay fit. The project was designed by some of the ISS International Partners and was implemented in 12 countries with two observing countries. Schools across the world were challenged to carry out physical exercises and science activities that demonstrated the importance of physical fitness and quality nutrition. The Challenge ran from January to March 2011.

Mission X 2012 (MX12) planning started in July 2011 during a face-to-face meeting with 13 people representing 11 countries or space agencies. The two-day meeting, held in the Netherlands, was to discuss and close the Mission X: Train Like an Astronaut Pilot effort and to kickoff MX12. A multi-year concept to continue Mission X through 2014 was introduced during this meeting and was well received.

Lessons learned during the MX11 Pilot Study were discussed at the meeting and of great importance were suggestions related to better communication. Children and adults enjoyed learning and interacting with other countries; therefore, an improvement in communication between child participants was recommended to augment their interest in MX and interaction with other cultures. Additionally, it was suggestion that improved communication between teachers and leaders would enrich the MX experience. The development of a teacher and leader only forum was suggested to facilitate the exchange of knowledge and ideas and assist in the set-up of video conferences between classrooms. To improve teacher and leader training, the need to create a dedicated web page with an introduction to MX and the activities, including videos, was discussed. The European Space Agency (ESA) took a more active role with all of its members and proposed a structure for communication and support to facilitate the dissemination of information.

Participants in the lessons learned meeting also discussed the development of future content. Currently MX is heavily geared toward physical activities (14) as compared to science activities (4). The partners identified the need for more science activities as well as more nutritionally themed activities but postponed the development of new material for MX13.

Internationally, both NASA and ESA led the efforts in recruitment. In partnership, they developed a list of countries targeted for recruitment in MX12, and after a preliminary discussion during the face-to-face meeting,

the countries proposed were Portugal, Puerto Rico, and Switzerland. A point of contact (POC) was identified in each country, who coordinated the recruitment efforts in the country and participated in the international MX teleconferences and meetings. In-country recruitment was handled differently by each participating country due to differences in resources, culture and government policies. The use of social media and calls to participate via space agency websites proved to be helpful in locating interested participants. The MX website also received emails from parties interested in joining; those solicitations were forwarded to the respective country leads.

Apart from developing new international partnerships, countries created partnerships within their own borders with institutions, government agencies, and organizations interested in promoting the MX message. These partnerships helped solidify MX in the country and highlighted the goal of involving families, schools, and communities in this global effort.

The MX12 Challenge started with the opening of the website in mid January 2012 for blogging and point accumulation. This date attempted to accommodate the diversity of holidays and school calendars between countries. Some countries implemented MX as part of the school curriculum while others adopted the program through afterschool programs. In early February, an in-flight call with astronaut André Kuipers marked the official kickoff of MX12. Website and blog activity increased during this period. On March 16, web entry point collection was discontinued; however, the blog remained open for comments. Countries were encouraged to develop a closing event that helped celebrate the children's achievements in MX. Figure 1 depicts the general participation statistics by country for MX11 and MX12.

Country	MX Children 2012	MX Children 2011	MX Teams 2012	MX Teams 2011	MX Adults 2012	MX Cities 2012	Lead Space Agency	Partners
Austria	207	250	10	10	10	4	FFG	Technisches Museum Wien
Belgium	87	25	5	1	10	5	ESA	
Colombia	1012	810	60	40	32	4	CCE	IGAC, Fundacion Cuidad Horizon 2050
Czech Republic	132	75	8	3	16	4	ESA	Czech Space Office
France	565	221	22	10	36	8	CNES	
Germany	517	297	20	12	21	9	DLR	
Italy	488	300	21	7	36	10	ASI	ASI, Infin.to, ALTEC, Planetarium of Milan
Japan	573	30	17	1	48	3	JAXA	Tsukuba Young Astronauts Club
Netherlands	672	490	17	21	45	9	ESA, Netherlands Space Office	
Portugal*	319	n/a	11	n/a	30	6		Ciencia Viva
Puerto Rico*	200	n/a	1	n/a	11	1		Ramey Job Corps
Spain	263	395	16	18	21	7	CDTI	Universidad Politecnica Madrid
Switzerland*	178	n/a	9	n/a	18	1		Museum BL
United Kingdom	3458	500	44	8	260	29	UK Space Agency	Venture Thinking, Royal Observatory Greenwich
USA	1175	807	25	7	45	3	NASA	Jamestown, Dunkirk, Sharon School Districts
15	**9846**	**4200**	**286**	**138**	**639**	**103**	**11**	**18**

**new country in MX12 Challenge*

Figure 1: General Participation Statistics

MX12 INTERNATIONAL CLOSING EVENT

The Mission X London 2012 Closing Event was led by an international working group which held regular planning telecoms throughout the year. Initial ideas for the event emerged from a MX12 planning face-to-face meeting in Paris in 2011. The final decision to proceed was made in January 2012 with the event being scheduled for April 2012. Decisions on the timing of the event were influenced by the following factors: the event needed to occur before the Olympics, the availability of astronaut Paolo Nespoli and the NASA EDGE film crew, and the avoidance of major holidays such as Easter.

Funding for the event was through a mix of contributions that were negotiated by the lead space agencies as the planning materialized. The UK Space Agency initially allocated 3 days to scope out the event for the financial year 2011/2012. NASA provided funding for the NASA EDGE crew and the travel coaches as well as for their own travel, subsistence costs, and flags for the participating children. ESA provided funding for the gala dinner, their own expenses, giveaways, and secured the time and commitment of Paolo Nespoli. The UK Space Agency leveraged additional support from their MX2011 - 2012 budget to support the event. Queen Mary University of London handled the budget on behalf of the planning group. Heather MacRae of Venture Thinking managed the program alongside Hannah Wright, a UK Space Agency intern and Jeremy Curtis, Head of Education for the UK Space Agency.

The program content was largely affected by the availability and willingness of venues to support such an exciting but ambitious program and large numbers of visitors. Initial plans were for approximately 50 visitors but in the end there were 120 participants. The program was also largely dictated by the broadcast timings and needs of NASA EDGE to plan and develop the program within a week. The wish to have sight of the Olympic Stadium also influenced the program. Planners were conscious that visitors who had travelled from as far away as Japan would have been disappointed if they had not been able to see iconic London landmarks such as Big Ben, Buckingham Palace, and the Tower Bridge.

MX12 INTERNATIONAL CLOSING EVENT *...continued*

The MX12 Working Group members indicated a number of highlights, which are quoted below:

- "Web cast was an excellent idea and worked well and has received over 300,000 downloads.
- The Mission X Games when so many children all got a chance to meet with an astronaut as well as the athletes – essential for giving them the link with what they are doing in the school as what happens in space. This generated energy and excitement and it was moving to see so many flags, so many children of diverse backgrounds including students with disabilities.
- The cultural experience and beauty of Cambridge and the fun of punting and the gasps of excitement from the children at the Cambridge Observatory as they looked at the moon.
- Watching Paolo's presentation on life as an astronaut – very inspiring and seeing his interaction with the children – especially on the bus and the boat where he was so informal.
- Seeing so many girls participating and presenting their ideas on stage.
- Contacts between teachers and space agencies from all over the world resulting in many interesting and productive conversations.
- Seeing the children all dressed up and the excitement of the music at the Gala Dinner and hearing the Hockerill band.
- The Royal Observatory.
- NASA people gave a fantastic class on what MX is all about and how the exercises are done by the astronauts including their food and nutrition.

The short timescale, uncertainty of numbers and tightness of budgets put real pressure on the very small organizing team. The weather was exceedingly unkind and London was especially busy in the run up to the Olympics. As the event was run during the Olympic trials, options for accommodation were limited – universities which might have provided a conference venue were full with their own students. Having access to presentations from guest speakers in advance would have been helpful. The key learning points were the need of a longer lead time and a clearer and larger budget. Although efforts were made to keep the dinner options healthy, it was not always possible to influence the catering with a tight budget and the large numbers of participants. Smaller groups of children with a higher proficiency in the English language would have made it easier to have mixed the groups and had more international cultural exchange. Attempts were made using the Hockerill Anglo-European College language students; however, the foreign guests felt more comfortable in their own peer groups. It would have been helpful to have one person overseeing the interaction of the students – organizing icebreakers and ensuring movement between the groups."

The Mission X: Train Like an Astronaut 2012 Closing Event was one of the three final nominees selected by the judging panel for The Sir Arthur Clarke Awards for Best Space Education Outreach Award.


OMEGA
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Hours Minutes Seconds
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European Space Agency

MX12 PILOT SURVEY

During MX12, a pilot study was completed to assess the value of a Mission X survey for both the children and the adults that assist with the implementation of the annual international fitness challenge. The pilot survey study was supported by teams from the USA, Spain, Netherlands, and Italy. The study was limited to these locations because the details of the assessment were late in being set, the process for implementation needed clarification, the surveys had to be translated into the primary languages of the students, and the post assessment was prolonged due to personnel availability to support the assessment. The pilot survey needed to be available both electronically as well as hardcopy to ensure participation. Unfortunately, not all the sites were able to use a single electronic system, which increased the time for the survey data compilation.

Surveys were collected from four participating sites (Table 1). The goal was to "match" participant surveys collected prior to the challenge and compare them to those collected after participation; however, unmatched surveys were also accepted and reviewed. The number of teacher or adult surveys was very small and was not used other than to document and address the qualitative comments provided.

The pilot survey was organized into three sections; 1) subject demographics, 2) subject interest and awareness of health and spaceflight topics, and 3) "unit" questions to determine subject knowledge of the topics included in the MX program. Table 1 summarizes the number of surveys received for assessment per country and is broken out as pre-survey only, post-survey only and a matched set of pre/post for a given individual. It is only the matched pre/post surveys that allow us to observe "shifts" in interest or knowledge for a participant.

Observations suggest that the unit questions should be simplified and vocabulary use more in line with the age of the students. Some of the teachers implementing the surveys also indicated that fewer questions would have made the surveys less stressful for the children. In order to reduce human error and maximize efficiency, electronic submission of the surveys will be encouraged in the future. The use of a single electronic database was not possible due to the lack of accessibility to computers and the Internet by some schools. Also, it was noted that the closure date for the electronic submittal was set too early. Team USA was required by the NASA Internal Review Board to use a controlled site since this effort was classified as research by the Human Research Program Education and Outreach (HRPEO) team.

The intent of the MX12 Pilot Survey effort was to assess the required processes for future MX surveys and to evaluate a selected number of questions that would help the program better understand the MX population demographics and general lifestyle and interest. Additionally, the survey looked at the programs ability to assist with learning specific items about living a healthy lifestyle and children's interest in human space flight.

The goal for MX13 is to have a single survey, ready for implementation much earlier than in the pilot study to enhance the number of pre-surveys obtained, and to strive to have a single electronic source to collect all data.

MX12, Team Netherlands — Hague Cohort

The MX12 Team Netherlands pilot survey cohort was made up of 94 students (48 girls and 46 boys) who participated in the post-survey only. This cohort of students from the International School of the Hague represented many different backgrounds. The school's primary language is English. The lifestyle and interest questions attempted to query the participant on their lifestyle in regards to 1) overall health (self and family), 2) interest in space flight, 3) participation in sports, and 4) eating healthy foods such as fruits and vegetables. In regards to overall health interest, a majority of the 94 participants indicated that they and their families' interest in living a healthy lifestyle was very high, with the remaining participants at least agreeing with the statement. For the questions on interest and involvement in daily physical

COUNTRY	PRE ONLY	POST ONLY	MATCHED	TOTAL SURVEYS
USA	49	323	84	456
NETHERLANDS	0	94	0	94
ITALY	74	177	163	414
SPAIN	200	0	0	200
Totals:	**323**	**594**	**247**	**1164**

Table 1: Summary of Surveys Collected

fitness, the focus of the two questions was on "sports" and "team sports". The overall involvement across this cohort was high (performing these activities more than four times per week). However, there were fewer participants that indicated similar daily involvement when asked about "team sports". For the question on daily consumption of vegetables and fruits, nearly all of the participants indicated they ate these types of foods at least four times per week. Finally, there were two questions about space flight. The first asked about interest in human space flight and the second was about interest in what NASA was doing. There was only a small group that indicated they "strongly agree" with an interest in what NASA was doing (24%) and even less about "human" space flight (12%). Overall this assessment looked at the highest degree of interest or involvement associated with the questions. One observation should be the fact that linking space flight topics to the more global interest and concern about living a healthy lifestyle should have a positive impact on drawing more people to becoming interested in space exploration and the STEM professions that support that type of work.

MX12, Team Italy – Italian School & Institutions Cohort

The MX12 Team Italy survey cohort made up a total of 414 surveys with 163 surveys having a matched pre- and post survey to allow for shifts in both interest as well as knowledge. The cohort was broken up into 11 Team sites. Of these 11 sites, 5 sites had matched surveys. The Team Italy Cohort was made up of 217 boys and 197 girls. The average age of the students was 11 years old with a range of 8 to 13 years of age. In general all the sites appeared to enjoy the challenge and the activities that made up the challenge. Like other sites, the Italians expressed a desire to add more time to the challenge, more than the six weeks allotted for the MX12 challenge.

Based on the general interest questions, this cohort had limited shifts in interest and selective shifts in knowledge. The following selected group assessments are highlighted below and summarized in Figure 2:

- **IC Caselee** site: Lifestyle and interest were nearly unchanged; there was a slight increase in self interest in health (12 vs. 15) and a major increase in their family interest (2 vs. 11). In regards to the unit questions, minimal change was indicated.
- **Locatelli-Oriani** (L-O) site: Interest and lifestyle showed minimal change. There was improvement on three unit questions (Agility, 15 - 18; Oxygen, 1 - 12; and Vitamin D, 5 - 12) but there was "negative learning" on one (Endurance, 7 vs. 3).
- **Enrico Fermi** (EF) site: EF overall had only minor shifts in areas of lifestyle, interest and knowledge. EF like other Team Italy groups showed "selected" increases in knowledge, Calories (12 increased to 17), Vitamin D (8 increased to 12), Energy (15 increased to 19), and Coordination (17 increased to 21).
- **The Di Nanni** (DN) site: DN showed improvements in interest and knowledge for nearly all the questions in the survey. DN had shifts upwards for interest in sports, general health, food selection, as well as interest in space flight. DN had upward shifts in knowledge for 6 of 9 unit questions.
- **Mario Greppi** (MG) site: MG had outstanding improvements in all categories of interest and knowledge – many improving to 100%. This group was made up of 25 matched surveys and another 20 post surveys.

Team Italy's changes on the unit questions looking at those cases where we had matched unit data sets are shown in Figure 2, and shows improvement on 8 of 9 questions. In the one question no improvement was seen,

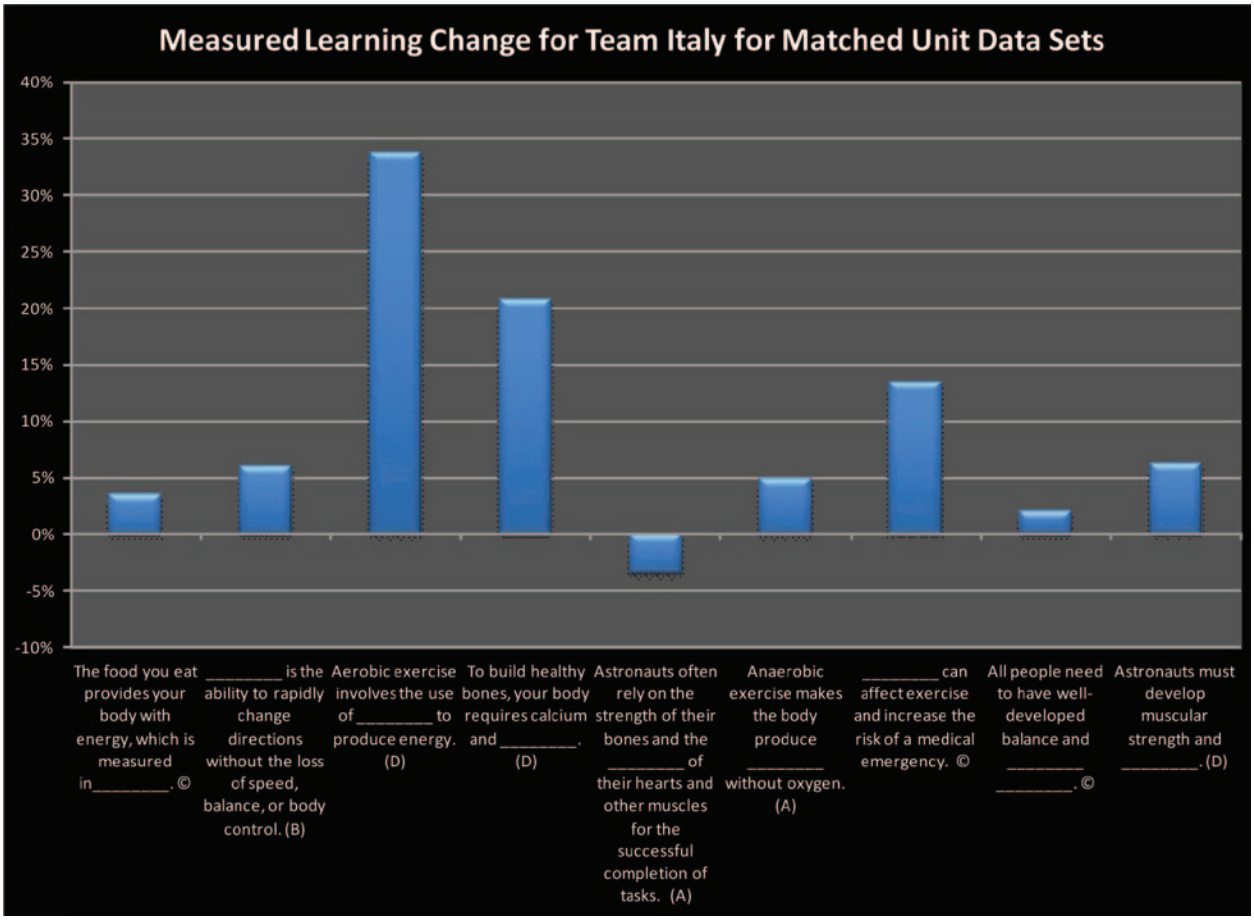


Figure 2: Summary of Team Italy Unit Questions Pre- to Post Changes

question 5, the question was found to be confusing and will be changed in future surveys. Question 8 was also found to be confusing in many cases where the correct answer is "spatial awareness". This terminology was considered to be far too hard for this age group and will be changed in future surveys.

MX12 Team USA – Dunkirk, Jamestown & Sharon Cohort

MX12 Team USA was comprised of students, educators and volunteers from three cities, 1) Sharon, MA, 2) Jamestown, NY and 3) Dunkirk, NY. This cohort reached rural and Title I schools. There were 478 students that participated in the surveys (254 boys and 224 girls).

The average age of this group was 10 years with a range of 8 to 14 years of age. Changes in pre- to post surveys on the unit questions about health and space flight are summarized in Figure 3. As seen in the other country cohorts surveyed, shifts in interest in sports and health were seen but were not major. Overall interest and excitement for participating in the MX annual challenge is evident in that all Team USA sites plan to return to participate in MX13. Growth is anticipated within the MX12 sites and Team USA is expected to expand to include three new states. An unanticipated and important outcome to the MX Challenge and the Train Like an Astronaut content is interest in adapting the materials to be useful when working with individuals with special needs.

MX12 Pilot Survey Assessment

Based on the 2012 surveys from the Netherlands, Italy, USA and Spain, the following observations and recommendations were identified:

1. A MX survey should be implemented during the MX13 Challenge and be made available to all participants.
2. A single electronic polling and collection site is highly recommended.
3. The survey should be submitted electronically to minimize survey assessment time and reduce the potential for input errors.
4. The "style and scope" of the unit questions should be modified and implemented to reduce concern or stress on the children that consider it testing. (Unit questions do provide content providers with a better understanding of the target audience and their ability to provide them with the proper information about healthy lifestyle and space flight.)
5. The lifestyle question on human space flight should be modified to focus more on the participants' interest in space flight and astronauts.

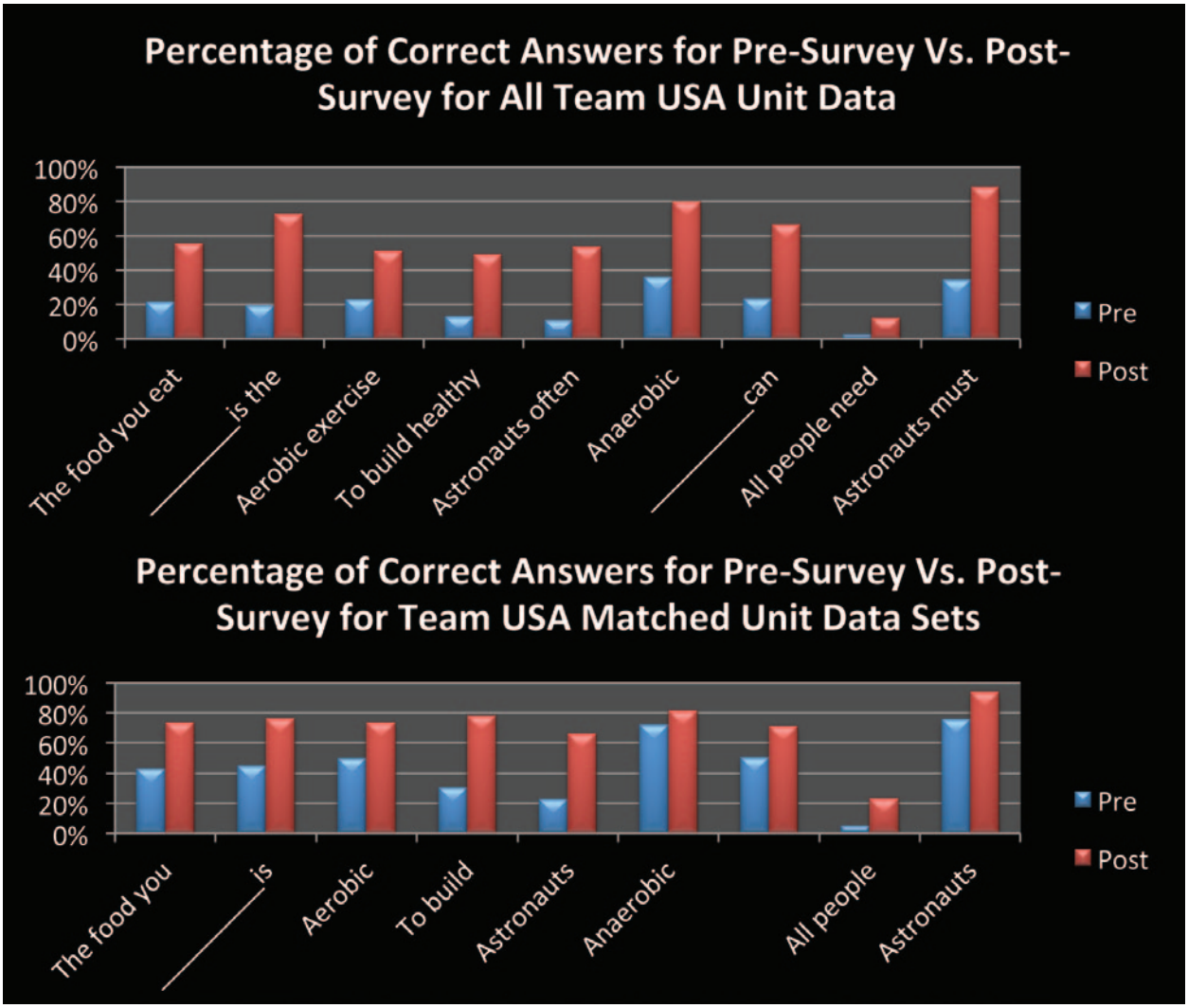


Figure 3: Summary of Team USA Unit question changes

MISSION X 2012 LESSONS LEARNED

As a global initiative, it is essential for all MX participant countries to be committed to teamwork and open communication. Feedback on all aspects of the program is highly encouraged and solicited throughout all phases with the intent to provide continual improvement and innovation to the program. A Mission X Facebook fan page was used to organize and develop a working network of adult leaders. MX12 country participants submitted the following comments:

1. A goal of the MX program is to continually expand country participation and collaboration. In-country partnerships with Ministries of Education and non-profit organizations provided better reach and implementation; therefore, a stronger engagement with education policymakers is essential for future challenges. Pre-event recruiting via special events appeared to help with participation. It was noted that the collaboration of space agencies and offices, with out-of-country participants, enhanced the spirit of MX. For example, the collaboration for the in-flight events was seen as very positive.

2. The MX program was intended to provide a straightforward curriculum with flexibility for modification. This flexibility was evident due to the use with nursery age students in several countries. Adult leaders comfortable with the activities in their area of expertise were able to adapt, modify, supplement and expand the content to fit the needs of their students. One country expanded activities with the theme of Life in Space and training of astronauts and separated activities into three topics: training on Earth, life aboard ISS, and life on the Moon. Countries in their second year of participation utilized previously trained teachers to train new teachers and, therefore, allowed for a growth in knowledge and expertise in the country.

3. With regard to the schedule, structure and organization of the program, several participants commented that an earlier and more stable schedule is needed. It was also suggested that the challenge should be lengthened to approximately 10 weeks versus the 6 weeks for MX12. Additionally, earlier access to the Facebook page would give adult leaders more time to familiarize themselves with blogging and navigation of the website. Most participating countries continued to use in-country or team mascots as a way to motivate children throughout the challenge. However, some countries were not comfortable with the structure of a point system and considered the system too subjective. Furthermore, due to the subjectivity, many countries decided not to award winners.

4. As in the MX11 Pilot Study, in-flight calls from the ISS were an important component for participants and brought legitimacy to the project in the eyes of participants and organizers. Many countries commented that astronaut involvement on the ground brought inspiration and motivation to the children. One country suggested the addition of an astronaut sponsorship from each participating country to motivate schools and children to participate.

5. Multiple supplemental resources, including websites, certificates, videos, and social media are provided as part of the MX program. As mentioned earlier, the Facebook page helped organize the network of leaders; however, earlier access to the page would allow novice bloggers more time to become familiar with the concept. Various participants recommended that the resources located on the MX website for teachers should be expanded to include more short videos related to the ISS, subject matter experts, and topics on life sciences. With respect to the current Train Like an Astronaut videos posted on the MX website, participants requested them to be less repetitive, making them more useable in training and classroom situations. Finally, with respect to supplemental resources, it was suggested to complement MX activities with digital badges to motivate and complement the challenge.

LOOKING FORWARD TO MX13 AND BEYOND

MX13 will continue the multi-year campaign and the goal of accomplishing three consecutive years of the MX International Fitness Challenge – 2012 through 2014 – which follow the Pilot Program of 2011.

There are five main growth and expansion goals of the multi-year campaign:

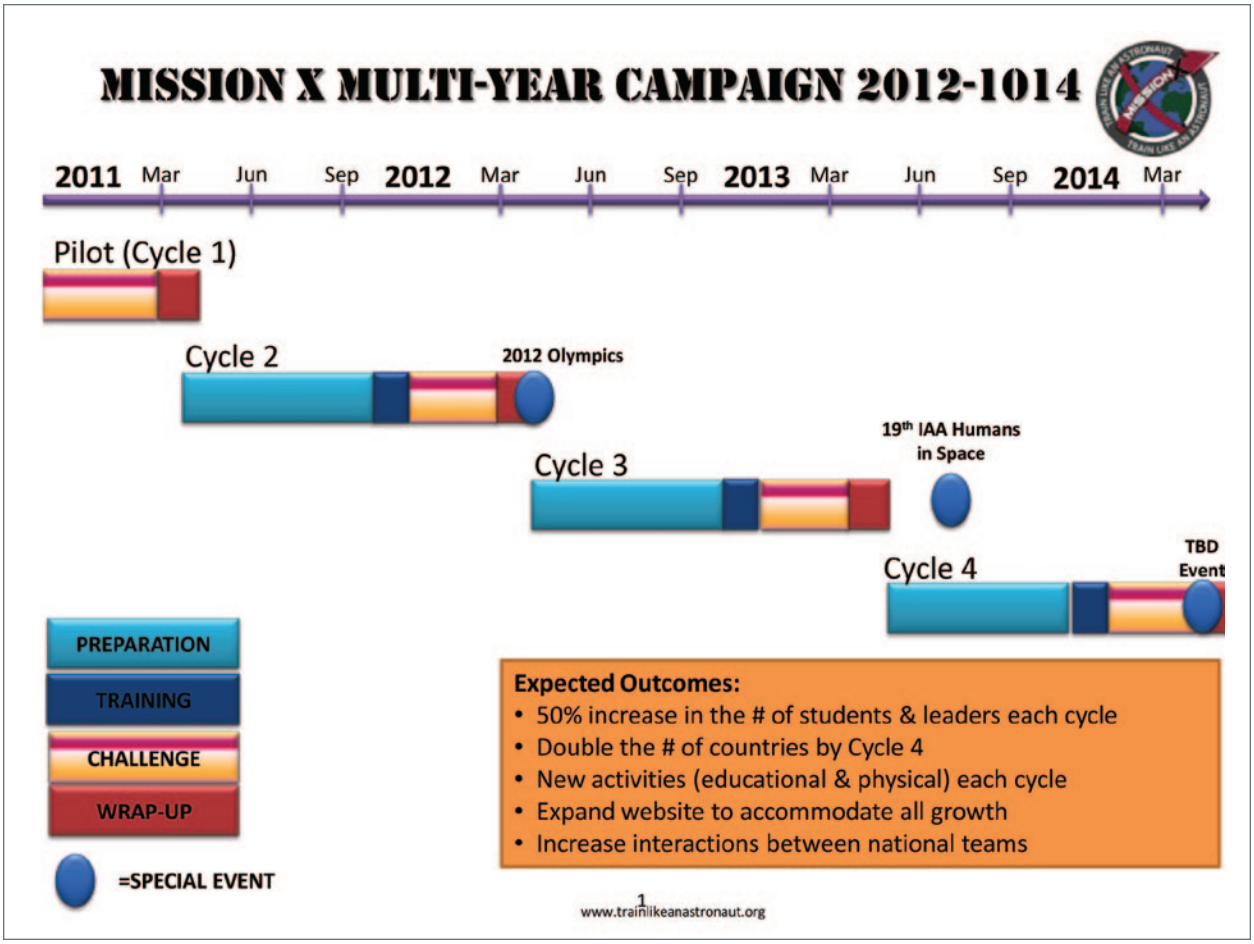
- Increase the number of participating students and leaders each cycle by 50%
- Double the number of participating countries and space agencies or supporting organizations by the end of MX14
- Add two activities to the project each cycle
- Expand the MX website each cycle to accommodate all MX growth
- Improve interactions between the various national teams by building upon relationships from the past cycle

MX13 Recruitment

As in 2012, NASA and ESA will lead the recruitment of participating countries and have established a goal of increasing MX13 by adding 5 countries or more. Some countries were previously targeted and participated as observers of the MX12 challenge. Therefore, MX13 is expected to grow to include 20 to 25 countries and to add at least two new languages – Russian and Norwegian.

To ensure ample time to work with new countries and teachers and students, recruitment of new groups began in June of 2012. New country POCs will receive an overview of MX, which will include the topics of roles and responsibilities, training material, website overview, and the challenge schedule.

In addition to seeking out new countries to join the MX challenge, it is hoped the existing countries will continue



to expand internally. Ultimately, however, it is known that the maximum number of participants is different for each of the countries based on their available resources.

As of June 2012, the projected list of new full and partial participants was:

- Chile
- Denmark – confirmed
- Indonesia – confirmed
- Ireland – confirmed
- Mozambique
- Norway – confirmed
- South Africa
- Sweden – confirmed
- Russia

The following countries plan to participate in MX13 as observers and are expected to be full participants in MX14:

- Australia
- Costa Rica
- Ecuador
- India
- Panama

Automation of Registration in 2013

As a commitment for continuous improvement in the MX program, automated registration will be tested with a small number of countries. Automated registration is expected to allow for more effective and efficient in-county recruiting. Issues encountered during the pilot test will be addressed. The system is planned to be available for all MX14 participating sites.

New Content Development

The MX program established a new content development special interest group to address the largest new effort identified for MX13. The goal for this multi-agency, multi-national interest group on space and health education is to establish the structure of the team and its required processes to identify new content topics. The team will also develop and test materials, and, after review by an over-sight committee, will release the materials for use.

The group has been asked to identify one or two topics for development as they "fact-find" the required steps and processes. By the end of the MX13 challenge, the goal is to release the new materials for use during the MX14 campaign. This group is expected to grow in size and continue to add new content to the MX and multi-agency portfolios, highlighting the aspect of living a healthy lifestyle while children, family and friends "train like astronauts."

E-Badges

Another new offering for MX13 will be E-badges to virtually reward children for completion of activities. E-badges earned will automatically appear on the challenge teams' blog sites and entries, and will be available for viewing by other teams to show how each is progressing as they participate in the MX challenge. The website team will identify up to four E-badges that will be offered during the MX13 challenge.

Integrated Mission X International Survey

During the MX12 challenge, a select number of countries participated in a "pilot" survey study to help the MX Working Group identify information about the participants, provide feedback and to help better understand the effectiveness of the MX content in many different settings all over the world. As a follow-up to the 2012 pilot survey, the MX program is working to have an integrated international survey that will be made accessible in all the languages currently used on the website. The information extracted from these surveys is extremely important for the agency leads to maintain program funding.

Development of MX13 Schedule

The schedule for the MX13 challenge, with an earlier start date, has been established and will follow a similar timeframe of the MX12 events. This set schedule enables country leads to better recruit and plan events.

The Planning Phase for MX13 started in May 2012, and will continue through the end of the calendar year. The Challenge Phase will start in early January 2013 and will continue through the middle of March. An official Kick-Off Event will be held at the start of this phase and activities will end with a Closing Event. The Post-Challenge Phase is expected to start mid-March and continue through the end of April 2013.

During MX13 planning committee meetings, it was proposed that an event be associated with the 19th International Academy of Astronautics (IAA) Human in Space (HIS) Symposium in Cologne, Germany for the MX13 International Closing Event. The theme for the MX13 international closing will be "Health and Fitness for Future Space Exploration." The event will provide MX students, teachers and parents from around the world with an opportunity to learn and experience the intricacies of human space exploration in a setting that will also provide an exciting educational highlight of human spaceflight. Additionally, for the 2013 International Closing, Mission X will partner with the 2nd International Humans in Space Youth Art Competition, allowing children to artistically represent health and fitness for space exploration in poetry, music composition and art.

Expand Adult Leader Resources

As a response to lessons learned, the MX program is looking to develop more materials for leaders. The goal is to facilitate access of information via the MX website. It is evident that leaders need materials to explain the space connection to the activities used during the MX challenge. The MX program is exploring the use of new videos, high resolution pictures, presentations, and links to space flight websites.

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APPENDIX B: RESULT OUTCOMES BY COUNTRY

AUSTRIA

The project "Mission X – train like an astronaut" was run in Austria for the second time. The first time was within the pilot project phase in collaboration with Vienna Planetarium, the second time the project was run by the "Technisches Museum Wien". This year 10 teams from 4 different regions in Austria participated. The project started in October with the information campaign for the schools and we kicked off with a teachers meeting in January. On 2 February the In-flight Call to the International Space Station with astronaut Gerhard Thiele was a first Highlight. After that the teams started their training. During this period they were supervised by a Mission X trainer, who visited all the teams in their classrooms and gyms. After the training period a final event at the "Technisches Museum Wien" with various presentations from the teams and a meeting with the Austrian MIR astronaut Franz Viehböck concluded the Mission for Austria in 2012. In the international event in London 5 participants from Austria took part.

General Profile Numbers

Total number of participating children: 207

Total number of participating adults: 10

Total number of teams involved: 10

Total number of cities involved: 4

Description of the approach taken:

Mission X was implemented and organized by the Technisches Museum Wien. ALR/FFG as the Austrian Space Office and RUAG Space support the project.

Major Points or important highlights that best represented Mission X 2012 in our country:

- Kick off meeting with teachers in January
- Watch the In-Flight Call to ISS on 2 February with all the teams and Astronaut Gerhard Thiele at the Technisches Museum Wien
- Meeting the teams at their classrooms and gyms
- Closing event on 13 April in the Museum with Astronaut Franz Viehböck

Lessons learned or areas that need attention:

- T-shirts were missing, very important for identification – local sponsors for the future possible
- Certificates came in too late – should be only an international template and then organized individually by country
- Problems with the point system –we implemented the "Oscar" system (winning in different categories - one overall winner)
- Homepage needs optimization, there was no possibility for the organizers to correct bad or wrong points
- Care about gender writing

Closing Event participation:

Five persons from Austria participated in the event. The event was very nice and we enjoyed it quite a lot! The "Face to Face" meeting was very important and should be mandatory for the future.

Recommendation for future Mission X events:

- Earlier organizing is required
- Involve more role models: e.g. in the field of nutrition, special cooks etc.
- More kids from more countries should be involved

Austria Mission X Facilitators:

- Michaela Gitsch (Austria Aeronautics and Space Agency)
- Peter Habison (Austria Technisches Museum Wien, head of project)
- Wolfgang Habison (project manager)
- Beatrix Hain (Technisches Museum Wien)
- Monika Rabofsky (Technisches Museum Wien)

BELGIUM

General Profile Numbers

Total number of participating children: 87

Total number of participating adults: 6 teachers

Total number of teams involved: 3

Total number of cities involved: 3 schools

Description of the approach taken:

The Euro Space Center was responsible for coordinating the competition; we sent 3,000 letters and 5 schools were enrolled. Of those 5 schools, 3 actually participated. Reasons cited by the 2 schools that did not participate: Lack of time, too complicated. It is difficult to contact the schools; the information does not reach the teachers easily; additionally, they are in high demand for numerous projects. The 3 schools that participated, on the other hand, were very enthusiastic, passionate, and dynamic. It must be noted that the teachers are already passionate about space.

Major Points or important highlights that best represented Mission X 2012 in our country:

Each school managed its project independently; I know that they have arranged visits by journalists, etc. even stories on local television networks. The highlight was the visit of Frank De Winne to the Euro Space Center on May 29. I think that it would be good if an astronaut would sponsor each country, this might motivate the school to participate.

Lessons learned or areas that need attention:

The fact that each school has to perform a self-assessment is a possible source of conflict and difficulties. I think that an international panel of judges should judge the projects.

Closing Event participation:

The top ranking class in Belgium won a 2-day Space Class at the Euro Space Center. The highlight was the second day: Belgian astronaut Frank De Winne handed the Mission X certificates to each child, presented his flight, and answered questions. During that afternoon, the other 2 schools joined us, and each school presented its Mission X project, having prepared questions to be asked to Frank De Winne on the different topics covered. That was a proud moment.

Recommendation for future Mission X events:

- Fewer e-mails as there are times when I receive too many of those and did not have the time to read them all.
- Review the assessment system.
- Receive all necessary information by the beginning of September, when schools start their school year.

COLOMBIA

General Profile Numbers

Total number of participating children: 1012

Total number of participating adults: 32

Total number of teams involved: 60

Total number of cities involved: 4: Facatativá, Bogotá, Medellin and Pasto.

Note: Chile that had initially proposed the participation of 4 teams from the city of Concepcion finally did not participate.

Description of the approach taken:

With the concurrence of the Colombian Space Commission – CSC (Comisión Colombiana del Espacio CCE) Mission X is implemented in Colombia through a joint agreement between the Agustin Codazzi Geographical Institute, (that also exercises the Executive Secretary of the Commission) and the Foundation Horizonte 2050. The Mission X 2012 Inaugural Event was conducted from the 13th to the 16th of February 2012 and counted with the presence of United States NASA Astronaut George Zamka, (whose mother and father are respectively of Colombian and Polish origin), Nubia Carvajal, representative of the NASA Mission X office and Dr. Rafael Lorza-Pitt, Space Systems Engineer from the European Space Agency – ESA and Chairman of Foundation Horizonte 2050.

The schedule for the Event was:

- **February 13 of 2012:** Debate, Questions and Answers with the member entities of the Space Commission – CCE. Discussion and interventions of the attendants on the experience o the astronauts in space, the interest of space programs for Nation and their relevance for educational and capacity building purposes, including Geospatial Technologies as major area of interest of the institute. It was again highlighted that these type of projects need to be supported by governmental policies and education.
- **February 14 of 2012:** Inaugural Event Mission X– Colombia-2012 with the contribution of special guests, mass media (radio and local news), and leaders and students of the participant equipment in version MX-Colombia-2011. Around 826 children from new schools and also those that have already participates in MX-2011 attended the event.
- **February 15:** Special Event in Facatativá schools gathering more than 1000 participants, among local officials and students from local and regional schools interested in the project.
- **February 16:** Visit to the cities of Zipaquirá and Tabio, for a Mission X Promotional presentation. This counted respectively with and attendance of 400 and 180 participants.

During all these appearances astronaut George Zamka presented his experience in space to the students and, together with Nubia Carvajal, presented Mission X, its purposes and benefits through physical and illustrative activities with the participants. The close contact with the astronauts fascinated youngsters and other attendants.

A NASA crash training was led by Nubia Carvajal, with the participation of new teachers. Additional an more detailed training day was organised by the IGAC-MX-Colombia team. Some MX-2011experienced teachers constituted a training team that guided new comers through the details of the activities.

Major Points or important highlights that best represented Mission X 2012 in our country:

Thanks to the project "Train Like an Astronaut Mission X 2012". The participant teachers and students have achieved a higher consciousness of their own body through a more detailed knowledge of nutrition, sport techniques and principles of a healthy life, reaching family and relatives.

Colombia has a different school calendar, which means that students start and finish the Mission later. This also means that inaugural and closing events are also shifted. Some inconveniences associated to this aspect might need to be adapted on both sides to smooth this issue.

The participation in MX-Colombia-2012 has notably increased and the interest of students and schools in general is much higher.

Lessons learned or areas that need attention:

- The realization of joint events, be those local regional or international enhances in the students, teachers, and community in general the sense of a shared experience and of pertainance to an important community. Similarly for organisers, administration and general community the sensation of effectiveness and results is more tangible. The results of teamwork are then evident.

- The project facilitates the early recognition or identification of health issues in the participants in the competition. Two cases have been identified in Colombia in 2011 and 2012 respectively.
- The stimulae represented by the MX concept to disabled individuals is very noticeable.
- The incorporation of a referent or role model for the students and other participants is key in the orientation and encouragement to participate and to assimilate the principles of the project.
- The publicity campaign deployed this year has notably increased the interest in the participation to Mission X. The fascination of the youngsters for all related to living and working in space is immense. This means that only logistics, resources and manpower appear to be the limits to the magnitude of MX-project.
- The reach of the project goes up to the parents and relatives close to the participants. They are also involved in the process of learning and acquiring healthy habits.
- Though the publicity and public events, segments of the general public have understood that space activities may result in tangible applications for the benefit of the general community.
- In the measure that the magnitude of the project increases, the accent on safety consciousness is more critic.
- It is evident that participating in Mission X activities provides the students the possibility to get interested and familiarised with special sciences and to get better habits for a healthy life.

Closing Event participation:

Colombia is still running Mission X. The closing event will be planned after conclusion of the mission (end of June). With regard to international events, representatives from Colombia attended the Mission X 2012 London Event and students could follow the event by the video streaming. This concept was considered an excellent idea because the student could analyse the activities of other children with the same objectives at the other side of the world. This is a good method to inspire students and teacher to continue with the mission and make the project bigger.

Recommendation for future Mission X events:

The school calendar in Colombia is different to that of the other participating countries. It begins in February and ends in December, this means that during the period of vacations in Colombia (2 months) the others countries are conducting regular activities. There is therefore a limitation to the preparation or development of the activities; the activities need to be accelerated, which makes it more difficult to achieve good results. For this reason an adjustment of the planning is brought to the consideration of the International Working Group. It is noted that Colombia has a high l evel of participation and that it is the intention to continue for 2013.

For the publicity of the Inaugural event of Mission X some informative and welcome posters were designed, as shown below. The following pictures show the posters adapted from the International Poster and used for the Inaugural Event.

CZECH REPUBLIC

General Profile Numbers

Total number of participating children: 132

Total number of participating adults: 16

Total number of teams involved: 8

Total number of cities involved: 4

Description of the approach taken:

The Mission X 2012 was organized in the Czech Republic by the Czech Space Office (CSO), Center for Student Activities – Milan Halousek, Jaroslav Urbář and David Novotný (external collaborator)
Project website in Czech: http://www.czechspace.cz/vzdelavani/mise-x-trenuj-jako-kosmonaut

The CSO project team cooperated with American Center of the U.S. Embassy in Prague (http://www.americkecentrum.cz/en), where the Mission X 2012 final ceremony took place.

Czech Mission X 2012 mascot was the "Krteček" (Little Mole), which in 2011 flew into space together with an American astronaut Andrew Feustel (Endeavour STS-134) – http://www.dokosmuskrtkem.cz/wordpress/?page_id=528

In most schools involved in the project Mission X 2012 were given presentations about astronautics by the representative of the CSO Milan Halousek.

Major Points or important highlights that best represented Mission X 2012 in our country:

Czech Mission X mascot "Krteček" flew in 2011 with U.S. astronaut Andrew Feustel to space (http://www.dokosmuskrtkem.cz/wordpress/?page_id=528)

SOVIČKOVÍ KOSMONAUTI – The youngest team of the competition were children from the Nursery School "Rozmarýnek" in Prague, from the class for exceptionally gifted children "Sovičky" with which the CSO collaborates on a number of long-term programs focusing on aeronautics.

MARŤANI + ŠKOLA VESMÍRU – Teams from the elementary school in Pardubice experienced fulfilling the challenges of the Mission X one night at their school.

BLACK MOON + LOCA PEOPLE – Four representatives of the two teams from the elementary school "Mládí" in Prague were speaking about Mission X in children's program on Czech public television.

In carrying out the task "Reduced Gravity, Low Fat" teams examined along with hamburger also other foods – donuts, sausage, mixed fatty meat, potato chips. After mashed everything looked bad, but at least donut smelled nice!

Lessons learned or areas that need attention:

There were no cosiderable issues, just due to winter weather in the Czech Republic in January and February was not possible to accomplish outdoor disciplines – "Base Station Walkback" and "Get on Your Space Cycle". Therefore those tasks were performed only as a voluntary.

The youngest team "Sovičkoví kosmonauti" replaced a bicycle by ride on a scooter around the nursery.

Teams "Marťani" and "Škola vesmíru" replaced the walking by skating on an ice ring and cycling by pedalling on a stationary bike.

Other teams did not performed these two tasks.

Closing Event participation:

Closing event was held at the American Center by the U.S. Embassy in Prague on Wednesday, May 2, 2012. The final event was attended by seven of the eight teams involved in Mission X 2012 from Prague, Pardubice and Přerov. The meeting was attended by more than 110 children and their teachers. All teams presented a small exhibition of photographs, diaries of the mission, flags and other items used in performing the tasks. After a brief welcome and refreshment at the American Center were presented to the Czech Mission X teams selected photographs from the performance of individual tasks by different teams from the Czech Republic, and also photos from the international teams to compare the efforts around the world as it is presented by photographs on the website. About their experiences from 2012 Mission X then spoke representatives of each team. In the beautiful sunny weather continued the meeting in the garden of the U.S. Embassy, where the teams were handed over diplomas for their participation and prizes from the partners – Czech Space Office, American Center and the European Space Agency. The meeting ended with group photos and a tour of garden with magnificent views of the historic old city.

On Wednesday, May 9, 2012 was held small final ceremony at the high school in Olomouc, whose team was unable to attend previous event in Prague. Mission X CSO representative Milan Halousek presented diploma and rewards, children described details about performing some of their tasks.

Recommendation for future Mission X events:

Extend the period for fulfilling of Mission X tasks for 2 months (8 weeks). The current 6 weeks is not enough considering the number of tasks. For example, in the Czech Republic starts at the beginning of February week of Spring break.

Edit rules of “Base Station Walkback” and “Get on Your Space Cycle!” so that they could be easier fulfillable even in bad winter weather conditions in Europe.

It would be great if some space themed puzzle with logo for the task Mission X “Crew Assembly” could be manufactured and distributed to each team.

FRANCE

General Profile Numbers

Total number of participating children: 525 children

Total number of participating adults: 30 teachers

Total number of teams involved: 20 teams

Total number of cities involved: 13 cities

Description of the approach taken:

Project launch in December 2011 in 7 "french academies" (regional education authority)

Mission X was followed by mail with the teachers. Tracking of information through the blog (29 posts by 6 school) and 1 Mali's personal blog.

An engineer at CNES has been involved in a college.

Gifts were distributed in every classes at the end of the project to each students (1 diploma/ 1 rule/ space's passport and 1 educational kit for the teacher)

Major Points or important highlights that best represented Mission X 2012 in our country:

The key points were: the relationship to space, the original appearance and motivating, a good impact, the link science /sports interesting

Lessons learned or areas that need attention:

Closing Event participation:

- **Toulouse:** Space City (Thursday April 5) 3 classes with a dedicated program of activities
- **Paris:** Museum of Air and Space (Thursday June 14) 4 classes with a dedicated program of activities
- **Guyana:** a visit to the Guyana Space Center (Wednesday 23 and Thursday May 24)bay the Elementary school with a dedicated program of activities
- **London:** Organized by NASA, April 26 for all classes participating in the project. No French classes but a representative for CNES (a teacher involved in the project)

Recommendation for future Mission X events:

- Lack of budget for transport to the ending event
- Notation: too many categories, confusion between individual points and team points
- Increase the duration of the challenge

GERMANY

General Profile Numbers:

Description of the approach taken:

Major Points or important highlights that best represented Mission X 2012 in our country:

Lessons learned or areas that need attention:

Closing Event participation:

Recommendation for future Mission X events:

ITALY

General Profile Numbers:

Total number of participating children: 488

Total number of participating adults: 36

Total number of teams involved: 21

Total number of cities involved: 10

Description of the approach taken:

In Italy X, Mission 2012 was organized by ASI in collaboration with Infin.to, ALTEC and Planetarium of Milan. In September we published the call on the ASI and Infini.to websites, giving the possibility to all interested schools in the country to participate in the project. We reached the goal we set: to increase by 50% the number of students enrolled compared to the previous edition (in 2011 participating students were 300). We organized two training days for teachers, which were held at Infini.to in Turin and at the Planetarium of Milan. During training days, in addition to explaining the project and use of the website, were distributed educational materials to teachers and organized a meeting with a nutritionist and an ALTEC expert in the training of astronauts.

The challenge began on February 2nd, with a grand opening event held at Infini.to, in collaboration with ESA, which was attended by about 200 students. During the event there was an in-flight call with ESA astronaut André Kuipers. Students have also participated in a series of activities focused on the theme of life in space and training of astronauts, specifically identified in the Mission X program. The activities were divided into three topics: Physical Training on Earth, Life aboard the International Space Station (ISS) and Life on the Moon.

The challenge lasted 8 weeks, during which students were able to visit the Planetarium of Milan, who organized an event dedicated to Mission X project, which was attended by 180 people, including students and teachers. The 2012 edition was completed in Italy with a big final event, sponsored by MIUR (Ministry of Education, University and Research), held in Turin at ALTEC. The event concluded with the awarding of the participating teams. In the spirit of the fair play that drives Mission X and given the current scoring system, ASI has chosen to reward participation in the project and not the victory: all students and teachers team leaders received a small gift in theme with the aims of the project (count-calories strings for kids and gym bags for teachers); teachers were also given a certificate of participation. The schools of the participating teams were rewarded with equipment for their gyms, while the winning team also received a plaque.

The day was also an important educational opportunity for students and teachers who have taken a guided tour of the ALTEC facilities. The visit was supported by highly qualified staff who showed them a replica of the ISS in 1:10 scale, the MPLM SEM (System Engineering Module) in 1:1 scale, a Martian Terrain Demonstrator (MTD) and much more. They also studied the sky and watched a 3D video of the International Space Station and other videos of important space missions. Special guest (Testimonial) of the ceremony was Franco Malerba, first Italian astronaut. Mr. Malerba, connected by telephone from Paris, spoke about his experience aboard the Shuttle and answered numerous questions from kids.

Event lunch break has turned into a useful opportunity to disseminate the values of the project: the lunch, nutritionally valuable and studied with the advice of a nutritionist, has emphasized the importance of proper nutrition for a healthy and balanced lifestyle, which consists of healthy foods, preferably organic and Km 0. During the event drinking water was offered by SMAT (Società Metropolitana Acque Torino).

SMAT produces drinking water supply for “space-use”, the so-called “water-fly”, used on the International Space Station (ISS), which sees the collaboration of space agencies of the United States, Russia and Europe.

Italy, thanks to ASI, has finally participated with a delegation of students to the London 2012 special event, held from April 26th to April 28th, 2012. The initiative was attended by 15 Italian students from 2 secondary schools participating in the program, and 4 accompanying adults.

Major Points or important highlights that best represented Mission X 2012 in our country:

All project activities were carried out according to the philosophy that inspires Mission X, namely the importance of healthy eating and physical training. Based on these principles have been chosen the awards and organized the events, particularly the final event in Turin, for which we used the advice of a nutritionist, who has studied a healthy and balanced meal for the young participants.

Given the debatable current scoring system, in the edition 2012 ASI has decided to award all participants, in order to reward teachers and emphasize the importance of participation in the project rather than the element of competition.

ASI has informed of the project the Ministries of Health and Education. The latter proved to be very interested in the initiative and sponsored the final event of the 2012 edition.

ASI, in collaboration with Infini.to, ALTEC and Planetarium of Milan, was able to offer to all participants a wide range of educational initiatives and insights. During the 2012 edition were held three educational events, covering the topics addressed in the project.

The events - an opening event at Infini.to, an intermediate at the Planetarium of Milan and the last closing one at ALTEC - have been important opportunities to engage and motivate participants, students and teachers, not only within Mission X, but in the broader context of space activities.

Lessons learned or areas that need attention:

The main problems found and reported by the teachers of the participating teams were:

Absence of an event calendar: was detected the absence of a precise calendar of annual events related to the project (training days and national/international events), that would allow schools to harmonize its annual educational programming (visits and educational travels) with such initiatives, thus enabling to estimate the costs needed to reach the places of events. The lack of a calendar and clear guidance provided far ahead of time has prevented some schools to participate in the international final event of London 2012. It would therefore be useful, and ASI is already working in this direction, to draft a calendar of appointments (training days, national and international events, and other activities and initiatives) by the end of June 2012, before the period in which schools establish their school planning.

Evaluation System: some schools have emphasized that the scoring system refers to the different valuation methods adopted by individual teachers and does not guarantee the impartiality of the evaluation. In our view, it would be useful to remove the final standings (1st, 2nd and 3rd place) and leave teachers free to assign a rating / score as in other educational activities.

Pre-test and post-test questionnaire: another difficulty has been identified in relation to the pre-test and post-test questionnaire developed by NASA and subject to students and teachers, respectively, before the beginning and at the conclusion of the challenge. Some teachers, in fact, showed that the tests are poorly calibrated for the target to which they are intended, by submitting too difficult questions for children aged between 8 and 12 years. In particular, in the pre-test, student's lack of adequate knowledge of the proposed topics did not allow, in some cases, compilation and transmission of questionnaires.

Technical problems with the website trainlikeanastronaut.com: some teachers have complained about difficulties in accessing the website and upload points.

Closing Event participation:

See point in ***Major Points or important highlights that best represented Mission X 2012 in our country*** above

Recommendation for future Mission X events:

The first recommendation for the events is to establish the dates ASAP and communicate all details of participation to the schools well in advance. If you require participants the effort to fill in forms full of information, during the event it is important not to disappoint the expectations and ensure that what has been requested by the organizers and communicated by participants (e.g. food allergies, disabilities, other needs) is taken into consideration.

Mission X events are organized for children between 8 and 12 years and must take into account their needs, particularly their unpredictability. It 's necessary to consider some margins of flexibility when organizing events for young people.

The most attractive topic of the project is "the astronaut": kids want to train like the astronauts and MX events should give them the opportunity to meet and interact with them personally, but also to experience the real astronaut training. In particular, at international events, which involve significant costs for participants, it is necessary to offer a unique experience that kids would not be able to live "at home".

Finally, in all MX events, both national and international, the philosophy behind the project that we must never forget is the importance of healthy eating and physical training. Priority should be given to these principles that cannot be set aside due to budget or organizational problems.

JAPAN

General Profile Numbers:

Total number of participating children: 573

Total number of participating adults: 48

Total number of teams involved: 17

Total number of cities involved: 3

Description of the approach taken:

Education and outreach are essentially vital for science, and so therefore these are certainly included within the scope of JAXA's science activities. The JAXA Biomedical Research Office (J-SBRO) went along with the principle of "Train Like an Astronaut" and has been taking part in the project since 2010. As a partial participant, we started the Mission X together with the Young Astronaut Club (YAC) -Japan.

Following successful completion of pilot events in 2011, we arranged 2 pre-events to promote the next Mission X 2012 challenge in Japan. After that, an elementary school (Kanazawa Jyuichi-ya Elementary School) took interest in our activity with an introduction from the JAXA Space Education Center, and applied to the 2012 challenge. Finally whole the school students participated in the Mission X this year formally.

Major Points or important highlights that best represented Mission X 2012 in our country:

The first event, entitled "Mission X Experience: Feel Gravity", was held in Tokyo in August. The participants were 33 elementary school children belonging to the Young Astronaut Club and JAXA's specialist discussed health promotion related to space exploration with them. The participants learned about the existence of gravity and the importance of physical exercise, before enjoying some of the Mission X activities. After the Mission X session, the children took part in a telecommunication event with an ISS crew member, Satoshi Furukawa. Astronaut Furukawa is a medical doctor so this was a good chance to promote the importance of good nutrition and physical fitness as life-long practices.

The second event was held in Koriyama City in October. Koriyama is one of the biggest cities in Fukushima prefecture, and located approximately 60 km from the nuclear plant which suffered the explosion. Evacuated children living there had not been allowed to play outside due to the radiation risk since March. The event was supported by a science museum and intended to cheer up the evacuated children. Eleven university students (Waseda University, Tokyo) participated in the event as leaders and taught 34 students. We believe that physical fitness, nutrition, and teamwork are indispensable, not only for exploring space but also overcoming disasters.

The Mission X 2012 challenge started in Kanazawa prefecture. Five hundred and one children trained like astronauts in classroom lessons. Students divided into 17 groups with their class and grade, and their teachers have played the role of instructors. They worked mainly on physical activities and enjoyed some quiz games related to space exploration and space medicine. Finally, we send delegates to the Mission X 2012 London in April.

Lessons learned or areas that need attention:

The 2012 challenge were held within restricted areas and the participated students were limited to small interested groups. Consequently, we would like to involve a number of schools on a large scale. This challenge in Kanazawa would represent a key contribution to extending Mission X into a nationwide campaign. Our concern is how to bring up leaders. We have started a series of seminars to learn about training like an astronaut for educators and teachers. In addition, we are considering how can we have more opportunities to communicate with JAXA astronaut directly like with Paolo Nespoli in London. It was precious experience for our students.

We will be continuing the education/public outreach to promote the public understanding of science and contribute to education through manned space exploration specialties and scientific knowledge.

Closing Event participation:

Unfortunately, we did not hold a closing event for 2012 challenge in Japan.

Recommendation for future Mission X events:

"Walk to the moon" is fantastic event for children all over the world. We propose that Astro Charlie and/or other crew members will go to the moon and return to the earth safely in the next challenge.

NETHERLANDS

General Profile Numbers:

Total number of participating children: 672 children from 8 to 12 years old (group 4-8) from 12 schools registered and participated to the 2012 edition of Mission X in the Netherlands (+ 300 children compared to the 2011 edition).

Total number of participating adults: Approx. 45 adults (3-4 teachers per school)

Total number of teams involved: 17 (12 schools, from 1 school 5 teams)

Total number of cities involved: 9

Description of the approach taken:

Pre challenge phase: September 2011 - January 2012

- September – end November. Promotion and registrations.
- 21 September: Mission X workshop at NEMO lunchmarkt (organized by NSO/NEMO/Space Expo).
- 13 January 2012: Netherlands Space Office training day for the Dutch Mission X teachers hosted the European Space Agency (ESTEC). 7 teachers attended and followed presentations about NSO, ESA, space, Mission X and received related educational material.
- Telephone/email training to the teachers who could not attend the training.

Challenge phase: 2 Feb - 16 March 2012

- 2 February 2012: European opening event of Mission X 2012. 300 children from 9 schools participated to the opening event hosted at Space Expo and organized in collaboration with the European Space Agency and the Leiden University (UNAWE project). During the opening event, ESA astronaut André Kuipers launched the challenge from the International Space Station (Inflight Call). T-shirts and goodies were distributed to the children.
- Support to the teachers.

Post challenge phase: March-April 2012

- 16 March 2012. Winners: 1st place. American School of The Hague (Space Fit 5). 2nd Place: Angelaschool (Team Master Kuipers). 3rd Place: Angelaschool (Fit Kids 6).
- Certificates and memento to all school.
- 26-28 April: final event in London. 3 teachers from Angelaschool and about 15 children and their parents from the American School of The Hague attended the event.

Major Points or important highlights that best represented Mission X 2012 in our country:

Opening event at Space Expo with inflight call from André Kuipers. Mission X 2012 in the Netherlands too advantage of the momentum generated by the PromISSe mission with Dutch astronaut André Kuipers among teachers and their pupils.

Lessons learned or areas that need attention:

- Start the promotion in mid August 2012 (when school open after the summer break)
- Some of the teachers who did not participate to the training had problems with the online points system and decided not to upload their points. It is important that all teachers participate to the training day to understand Mission X goal and implementation in the classroom.
- Encourage exchange of experiences between children and teachers from different countries
- Dutch teachers found the point system too subjective and not appropriate to a challenge with a final award; they would prefer a more objective point system (ex. 1 exercise = 1 point).

Closing Event participation:

- 3 people from the organization: J.Wamsteker/NSO – C.Olivotto and N. Sentse/NSO contractors
- 3 teachers from Angelaschool (2nd & 3rd prize)
- 16 children with parents and 1 teacher from the American School of The Hague (1st prize)

Recommendation for future Mission X events:

- Promote the final event from September 2012 with clear dates and costs
- Mix children
- Each delegate should have a slot to present local MX activities to the other delegations
- More MX related activities for children

PORTUGAL

General Profile Numbers:

Total number of participating children: 319

Total number of participating adults: 30

Total number of teams involved: 11

Total number of cities involved: 6

Description of the approach taken:

In Portugal, Mission X 2012 was launched by Ciencia Viva, the National Agency for Scientific and Technological Culture, a non-profit organization with strong links to the Ministry of Education and Science, which acts as one of its main funding body.

Ciencia Viva has already a solid tradition of cooperation with the European Space Agency, particularly through joint public communication events with the ISS and European ESA facilities across Europe. The organization and implementation ran thought the following milestones:

The project was launched in Septembre 2011 at the National Teachers Night, held at the Pavillion of Knowledge, the largest Science Centre in the country. This approach facilitated the dissemination of the project throughout a large number of teachers. A website was designed for Mission X (www.cienciaviva.pt/projectos/missaox), with a special on-line form for participants in the project.

November 2011 was the deadline for class enrolment in Mission X. The 13 teams selected were informed of all the steps and procedures to be carried out, particularly having in view the international launch event, on the 2nd of February. A continuous relationship between the national Mission X coordination and the local teams started.

December 2011 was used to establish a cooperation process with the Faculdade de Motricidade Humana (FMH – Faculty of Human Kinetics), of the Technical University of Lisbon (UTL – Universidade Técnica de Lisboa). The purpose was to engage the scientific community right from the start of the project. The contribution of experts in human kinetics resulted in (i) the design of new exercises (added to those in Mission X), (ii) the co-organization of the 2nd February event (were live exercises were set up, and, finally, (iii) the participation of scientists in a conference panel of experts who answered questions raised by both students and teachers.

February, the 2nd, the Mission X launch event marked the start of activities at schools. Since then, school carried out all the project activites and exercises. The project went smoothly, with no noticeable difficulties.

An unanticipated result is worth mentioning, as schools set up autonomously a working network amongst themselves, taking advantage of the Mission X facebook page. This network became the main communication device between the national coordination and all the schools in the project.

Major Points or important highlights that best represented Mission X 2012 in our country:

An added value was the participation of academic and scientific institutions, which provided help and advise within a context of proximity between experts in various fields (e.g., Nutrition and Human Kinetics) and the participating schools. Mission X, in Portugal, provided an opportunity for a close dialogue between the scientific and educational communities.

Mission X helped us to mobilize leading professional athletes, particularly in the areas of surfing and climbing (Joao Garcia, the first Portuguese at the Everest, and Maria Abecassis, the national surf champion, were both part of the project).

The participation of Mozambique went beyond what would be expected from the status of a Mission X observer. Indeed, the Portuguese School of Maputo was particularly active, namely in terms of the organization of a team ("EPM Espacial", with 24 members), which was engaged in all the educational activities (both physical and scientific).

Noteworthy was the high level of student participation at the Videoconference Event (2nd February 2012), which exceed our estimates. Up to 300 students and teachers attended the videoconference with the ISS, and were actively engaged in the physical and scientific exercises at the Pavillion of Knowledge, Lisbon. Indeed, evidence of this enthusiasm is visible in the following video, broadcasted at national TV, see: *http://www.cienciaviva.pt/mediaplayer/index.asp?accao=showvideo&id_videofile=94*

Lessons learned or areas that need attention:

Foster a teacher network community. Attention should be paid to tools and actions designed to enhance the communication amongst teachers in Mission X (e.g. a skype community; using Edmodo communities, *www.edmodo.com*).

Need for a stronger engagement of education policymakers, at both national and international levels. Communication and dissemination should reach transnational education bodies and associations (e.g., in Europe, ECSITE, European Network of Science Centres and Museums;

ATEE, the Association of Teacher Education in Europe; European Association for International Education).

Closing Event participation:

Portugal did not participate in the London closing event.

Recommendation for future Mission X events:

Rethink the certification process. Individual student and teachers should receive some kind of accreditation, including digital badges, as a complement to the "point gathering" device.

Rethink the schedule of the preparation of the 2013 Closing Event. Attending this event should be seen as an award for Mission X participants, particularly the winners. This means that there must be a longer interval between completion of exercises and the beginning of the Live Event, to facilitate selection of the teams.

PUERTO RICO

General Profile Numbers:

Total number of participating children: 200

Total number of participating adults: 11

Total number of teams involved: 1

Total number of cities involved: 1

Description of the approach taken:

Mission X in Puerto Rico was coordinated by the Ramey Job Corps and offered to students from two schools, Ramon Rodriguez Elementary and Jose de Diego Elementary, in Aguadilla, Puerto Rico. Ramey Job Corp and Mission X were connected via the First Lady Michelle Obama's Let's Move! Initiative.

Organizers at the Ramey Job Corps were looking for ways to get the community involved in increasing physical activity in children. A meet-up was posted via the Let's Move! Initiative website resulting in a phone call from Mission X coordinators.

The 6-week program was implemented as an afterschool program utilizing young adults leaders registered in the Ramey Job Corps program who volunteered to go to the elementary schools. The 11 volunteers traveled to the sites prior to the student's dismissal time to set up the activities for the afternoon. Students participated on the activities while discussing nutrition and healthy lifestyle choices. During the sessions, leaders utilized the careers highlighted by the program to promote STEM careers and the importance of staying in school.

Major Points or important highlights that best represented Mission X 2012 in our country:

No input

Lessons learned or areas that need attention:

No input

Closing Event participation:

Team Puerto Rico was not able to participate in the closing event organized by NASA.

Recommendation for future Mission X events:

None

SPAIN

General Profile Numbers:

Total number of participating children: 263

Total number of participating adults: 21

Total number of teams involved: 16

Total number of cities involved: 7

Description of the approach taken:

Basically, the schools that participated this year had participated in the previous edition so it is not necessary to explain the whole process of MX again. At the beginning of the school year, from the university, we got in touch with the institutions interested and will update all information via mail and phone when necessary. A new school enrolled in the program so late. Being a school outside Madrid made all the contacts, explanations of materials, etc., via Telephone and web. We want to highlight that the our research team "ImFINE" from the Universidad Politécnica de Madrid is doing a great effort to make Mission X possible in Spain, with a very limited budget this academic year 2011/2012.

Major Points or important highlights that best represented Mission X 2012 in our country:

On the one hand, for schools it has been very important to be able to participate in an international project of its kind with two large agencies such as NASA and ESA. At the same time it has also been very positive to participate with other schools from different regions in Spain have been looking through the web what they were doing other educational.

Lessons learned or areas that need attention:

By the beginning of the school year 2012/2013 we should have very clear from all that the organization will accompany MX over the next year. For example, if ultimately not going to compete with schools to try to get the highest score if not for get to all AstroCharlie take to the moon. It is also important for schools to know for sure what material they will be able to provide. If you finally decide to make the Final Event in Germany for the next academic year it would be essential that schools know from the very beginning of the course. A national organization is also important that we make the final event on the premises of ESAC, as it is an event that attracts many kids and teachers.

Closing Event participation:

As we have done in previous editions we organized a final event to visit the facilities of ESAC, on April 27. In there, participating schools received a few lectures by engineers ESAC about space and everything that surrounds it. Some students toured the satellite control room and the full scale models of ESA satellites.

Due to the limited budget to bring the schools in the regions far from Madrid only schools closer than 130 km from Madrid were able to attend. The participating centers were:

CP Juan Aguado
Santa Ana CP
CP Ramon Linacero

In total there were 105 students and 8 teachers.

Recommendation for future Mission X events:

The possibility of an international event is very attractive to all students and teachers, a proof of this has been the success of London even though the event had to be organized quickly.

From our point of view, in order to organize future international MX event, we would like to take into account the following items:

The main attendance limitation for students and teachers is money so we believe it should be a priority to achieve an affordable price. For example, Germany has a very important network of student residences very well equipped and subsidized by the state so the prices are very affordable.

We should take into account school holidays to try to organize around them, if possible.

The activities should be centered in the interest of the children, not adults. For school age children, a bus ride over 1 hour each way is too much, we should organize activities close to the lodging facilities.

We could work on improving the interaction between students from other countries planning to attend the closing event before arriving at the MX event, that way, many of the children will be familiar with each other, which creates good atmosphere. For example, you could create crews of aspiring international astronauts, resembling real ISS crews, and having to contact each other to exchange information. Here the possibilities are endless and many activities can be organized to promote this interaction.

In order for the teachers to attend the event is important that the event be registered in the EU program Comenius, exchange of teachers and students. In this way, teachers could get the budget necessary to attend the event.

Regarding the activities are conducted with students can be arranged so that there is interaction between different countries

SWITZERLAND

General Profile Numbers:

Total number of participating children: 178

Total number of participating adults: 18

Total number of teams involved: 9

Total number of cities involved: 1 (Liestal)

Description of the approach taken:

It was organized by Janine Frey who is responsible for the educational programs in the Museum BL as well for the current children's exhibition "3, 2, 1 Start. Einmal Weltall und zurück."

We had two speeches in the morning, one of Mr. Botta from the Swiss Space Office and one of Mr. Marcel Egli from ETH Zurich.

Our special guest was Mr. Claude Niccolier who talked about being an astronaut and gave autograms to the children.

They then had a workshop where every team built an extraterrestrial landscape. They sine then have been exhibited in the Museum until today. After lunch, there was the call to Mr. Kuipers.

Major Points or important highlights that best represented Mission X 2012 in our country:

The calling of Mr. Kuipers as well as the visit of Mr. Claude Nicollier in the morning were the two major highlights for us.

Lessons learned or areas that need attention:

Technical equipment and installation of the equipment for the Video Conference System was very complicated, expensive and took a lot of time to install.

ESA Note: Sites selected for an In-flight call (IFC) are only approved by ESA on the basis of an agreement by the site to have in-place all the technical requirements which are clearly laid out. When the host site cannot fulfil these technical requirements (which includes their own technical on site personnel) then ESA has tried to do the best as was done with Museum B where despite technical issues a successful IFC was carried out.

ESA Note: With regards to any future IFC's a pre-visit by ESA to the host site will be made to ensure all technical requirements are as stated.

Closing Event participation:

We didn't participate.

Recommendation for future Mission X events:

In general, we expected a bit more support for the organization of the event from ESA.

ESA Note: The MX Challenge lasts 6 weeks. When a country signs up to become a participant every effort is made to help with information exchange. It is vital that whoever volunteers to be a point of contact is able to put in the time required to communicate with schools and teachers. The IFC is a one off event and ESA makes every effort to select the appropriate host from all the MX countries. A representative from ESA is present on the day and this is communicated in advance. Our representatives are there to assist with communications between ESA and the host site in case of technical problems during the IFC.

I got several bills for the sending of rulers etc from ESA. I was a little bit irritated that the Museum has to pay the costs for the shipping of presents for the children. The museum had huge costs for this event. We would have expected that we wouldn't have to pay at least for the material provided by ESA.

ESA Note: Unfortunately, Swiss postal services made a decision to charge shipping which was not communicated directly to ESA. Lesson Learned: Contact ESA prior to paying shipping cost.

ESA Note: All communications to the blog site are done by the teachers directly unless they choose to ask the POC to do this.

UNITED KINGDOM

General Profile Numbers:

Total number of participating children: 3458

Total number of participating adults: 159 teachers or adults and an additional 91 parents.

Total number of teams involved: 44 schools took part with 164 teams

Total number of cities/towns/villages involved: 29 different towns, villages or boroughs took part.

Description of the approach taken:

Mission X was led by the UK Space Agency and managed by Heather MacRae from Venture Thinking. Additional enrichment activities were provided by organisations such as Queen Mary, University of London, Royal Aeronautical Society, Cambridge University, Lego Education, Astrium, Out of This World Learning, Royal Observatory Greenwich.

Schools were invited to take part via newsletters, ESERO-UK (the UK's space education office) news items, word of mouth and bulletins on the UK Space Agency website. Schools were offered a one to one training session led by Mountfitchet Mathematics and Computing College with input from Jeremy Curtis from the UK Space Agency. Additional distance learning webinars were supported by Yamil Garcia and Nubia Carvajal of NASA. Schools were provided updates, resources and invitations to other science, technology, engineering and mathematics outreach programmes to support Mission X and their interest in space. Fourteen schools took part in additional space activities. Schools were invited to run Mission X in way that suited their students and curriculum. Several schools organized launch and landing days to open and close the programme. Richard Garriott helped with the pre-launch activities.

Schools largely adopted one of the following approaches:

- Secondary school – delivery for years 7 and 8 through core lessons in PE and science supported by extra–curricular clubs and homework tasks (e.g. food and urine diaries, research tasks) Secondary schools – integrating Mission X into International Baccalaureate Middle Years One World programme and linking science, PE, modern foreign languages and communication, music.
- Cross phase project with secondary school leading activities and support for their own year 7 students and for year 5 students in feeder primary schools. In some areas PE and science secondary specialists delivered sessions in the primary schools.
- Primary schools using the materials in Year 5 Earth and beyond, health and wellbeing and PE curriculum
- Primary schools integrating the programme into a whole school creative curriculum approach.

Major Points or important highlights that best represented Mission X 2012 in our country:

- High numbers of students and staff across the country took part despite late call for schools. Numbers increased during the course of the project – unusual as there is usually a drop off. Schools that decided not to take part after the pilot year had parents complaining that their children were missing out.
- Hockerill Anglo-European College reported an average 25% increase in academic achievement in science over and above what would be expected from pretesting and controlled end of module testing).
- Teachers engaged with the curriculum resources and felt empowered to adapt, enrich and add materials to suit their curriculum needs and in response to student interests. Two schools undertook a major curriculum remodeling using the materials. New activities emerged suggested by teachers – astronaut recipe book used in food technology, Lego rover activities, solar sails, screaming jelly babies, badge making, model making.
- The project created buzz and interest in the wider community and amongst parents.
- Freebies were very much appreciated! T-shirts, certificates and flat kids especially popular. The students enjoyed seeing students on the other side of the world wearing the same t-shirts/logos. Schools were given copies of Packing for Mars book and resource kits.
- Excellent feedback: "There was a real buzz every week. Children in both year 6 (11-12 year olds) classes had a passionate interest. It was a fantastic experience for these students." (Anna Pinto Head of Science, Kingswinford School). "I loved it all" (Student, Elsenham Primary School). "It gave me a chance to remodel the curriculum on forces in a truly cross-curricular and creative way." (Ed Vine, Hockerill Anglo-European College). "The project was a great success and the children were really excited and motivated by the content." (Vanessa Anderson, St. Ninian's School, Fife). Georgina Parker (Kew Green) said, "It was great to have a fun, interesting, different and motivating cross curricular approach to doing science and sport, problem solving and team work, hearing from astronauts and trainers was good." "Having an astronaut such as Richard Garriott speak to them was a booster for Mission X – pupils felt very privileged to have an astronaut to talk to them." (Vijay Munian, Cumberland), "The best things were

building stronger relationships with our partner primary schools, the fun and all round smiles on so many faces, excellent resources that enabled us to deliver dynamic and punchy days and expending energy with such a feel good effect." (Yvonne Winkelman, Eastlea School). "We couldn't get the boarders to go to sleep after the Moonwatch event – there was so much joy, wonder and enthusiasm" (Ed Vine, Hockerill).

- Revision and adaption of curriculum materials by Venture Thinking and signposting to other resources. Schools were encouraged to adapt lessons to the schools resources.
- Positive feedback on webinars and training sessions.

Lessons learned or areas that need attention:

- Teachers are unfamiliar with blogging and need to have passwords and logins in time so they can gain confidence.
- Late confirmation of start date meant there was a rush to recruit schools who then linked Mission X with their curriculum. Greater flexibility to extend the project into the summer term would be welcome.
- The cut off date for the points system continued to be problematic – and the point system itself is Ok for internal use but not for benchmarking performance or for competitions. It caused some resentment.
- The excellent presentations by Chuck Lloyd and Yamil Garcia at the Royal Aeronautical Society would be useful starting points for teachers to provide the context.
- The short videos illustrating the activities are good … but the repetition of the opening remarks makes them difficult to use. A short omnibus edition would be helpful.
- British ESA astronaut Tim Peake wasn't as involved as we would have liked due to diary commitments.
- Easy access to the videos from the ISS on the website would be good – a short video gallery.
- Earlier arrival of the Flat Kids would have been helpful.
- Concentration of events in London area not as helpful for schools in regional areas.
- Closer links with the curriculum especially at secondary school to embed it – with more astronomy, space content, and opportunities for writing. Student articles were excellent.
- Astronaut role models are great motivators for engagement.

Closing Event participation:

The UK acted as host and provided participants. Over 280 UK participants took part in a full three day programme alongside international students. In addition to the students participating, other organisations such as Olympic Heroes, Out of this World Learning, Royal Aeronautical Society, National Health Service, Royal Observatory Greenwich, Cambridge University supported the Mission X international event. The event was successful. However, the late decision to go ahead with the event, uncertainty over numbers, and the difficulty of trying to ensure Olympic themed content added to the pressure of organisation.

The UK arranged a separate workshop for UK students with support from NASA staff on the Wednesday prior to the closing event so that more UK schools could be involved. The event was heavily oversubscribed and three schools had to be turned away. A futher closing event is taking place on June 18th specifically for UK Schools.

Recommendation for future Mission X events:

Teachers, parents, children, and space agencies have different needs and interests and it is difficult to find a programme that engages all. Minimum language levels would help mixing of international groups – and input from language specialists to help mixing. Once you have numbers of 100 plus your options for visits, food, and accommodation, become very limited. Need a longer lead in period for planning with greater clarity on budget. The NASA Edge film was almost a separate project – running parallel, tight deadlines, and different needs. Sunshine!

UNITED STATES (HRPEO Team)

General Profile Numbers:

Total number of participating children: 1175 (Jamestown: 75, Dunkirk: 350, Sharon: 750)

Total number of participating adults: 45 (Jamestown: 13, Dunkirk: 17, Sharon: 15)

Total number of teams involved: 25 (Jamestown: 2, Dunkirk: 14, Sharon: 9)

Total number of cities involved: 3

Description of the approach taken:

Team USA for Mission X 2012 was composed of three sites — two sites were in Western New York (Jamestown and Dunkirk), and the third site was in Sharon, Massachusetts, just south of Boston. Dunkirk and Sharon implemented the program in their school classrooms while Jamestown implemented it in an after-school program. Dunkirk and Jamestown were new to Mission X, but Sharon had participated in Mission X 2011 as an observing site. All three sites had one main point of contact that interfaced with NASA, and that person was responsible for communicating the discussions with NASA to the other adults in their program.

All three sites were Title 1 schools. The age range of students was 8-13 years of age. The teams varied in size from 11 students per team to 113 per team. The average size of a team in Jamestown was 38 students, in Dunkirk it was 22, and in Sharon it was 80. The frequency of when and how long the teams met for Mission X varied — in Jamestown the teams met once per week for 90 minutes, in Dunkirk the teams met three times per week for 30 minutes, and in Sharon the teams met twice per week for 40 minutes.

Major Points or important highlights that best represented Mission X 2012 in our country:

Team USA thought Mission X 2012 was "extraordinary" and "great"! The feedback received from all three USA sites was overwhelmingly positive. The students thoroughly enjoyed "training like astronauts" and the teachers were thrilled to work with NASA on the program. All three sites used the training webinar and videos and said they were a huge help to the teachers in understanding how to perform each activity and also the space relevance behind the activities.

Jamestown and Dunkirk were new to the program and there was some concern regarding how well they were going to be able to coordinate all the components of the Challenge. By the end of the Challenge it was clear that if the site has a dedicated lead for the effort the Mission X Challenge can easily be implemented. All three sites are fully prepared to take on the MX Challenge again in 2013. The main point of contact in Sharon strongly supports the space industry and is promoting Mission X at various STEM conferences, such as the Bridgewater State University STEM conference and continues to convey the benefit of the Mission X program.

Lessons learned or areas that need attention:

The feedback received from the Team USA points of contact was mainly positive, but there were some suggestions for improvement in future years. However, since every school district in the United States has different rules on how often classrooms meet or how long a classroom meets, some of the recommendations are not possible to implement.

- Length of the Mission X Challenge is too short. The Challenge should be closer to 10 weeks in duration to allow schools to complete more of the activities.
- Provide a timeline or recommended schedule that schools should follow for Mission X. Teachers were rushing at the end of the Challenge to complete as many activities as possible as well as enter all the points on the website at the end.
- Length of each activity is too long for a gym class. By the time the students changed their clothes, the time to perform each activity was only ~25 minutes, which was not enough time to complete the activity and provide all the space relevance/background.
- Have the ISS kick-off event be available to teams in the United States. Team USA would have liked to participate in the event from the ISS-- the students get very excited at the thought of having an astronaut on the ISS wish them good luck on Mission X.
- For students that will be participating in the program for multiple years, develop ways to keep it different and interesting for those students. Perhaps in the training video, point out the "Fitness Accelerations" parts of the activities.
- Have a backup plan for the Closing Event in case technical difficulties arise that prevents a site from participating in the live event.

Closing Event participation:

All three sites participated in a virtual closing event on March 30th hosted from the Johnson Space Center's Digital Learning Network studio (DLN). It was a 90-minute program that included Q&A sessions from each of the three sites to Astronaut Dottie Metcalf-Lindenburger, an overview of the Robonaut (R2) program, and a communication session between the "R2A" unit at JSC and the "R2B" unit on the International Space Station with the two units using American Sign Language to communicate with each other. With the help of another video the students got to go on a "Fly-Thru" of the ISS with Dottie doing a narrative of what they were seeing. Another special guest, Astronaut Alvin Drew highlighted components of Astronaut training for future human space exploration missions, supported by two other videos. In the end the three sites making up Mission X Team USA for 2012 "rolled down" their Mission Accomplished banners. With Mission X Team USA participants growing in numbers and states each year, the Closing Event will likely continue to be virtual in the years to come. The use of the DLN allows NASA to conduct a live event with each site and still provide the excitement of celebrating the students' completion of the challenge by having key NASA personnel like astronauts, unique facility tours and project videos. The DLN "Bridge" allows connection to multiple sites so that students from each location can ask live questions to NASA personnel.

Recommendation for future Mission X events:

The main recommendation is to have an astronaut on the ISS do a live downlink to schools in the United States. Team USA students would like to have a similar opportunity as European teams to have an astronaut on the ISS wish them good luck on the kick-off of Mission X. Another recommendation is to keep promoting and encouraging the communication between different teams around the world. One of the highlights of Mission X 2012 was being able to Skype with teams in Europe and the students really enjoyed the international aspect of the program.

APPENDIX C: ROLES AND RESPONSIBILITIES

Mission X Program Lead

The Mission X effort is led by the NASA JSC Human Research Program Education & Outreach (HRPEO) team. This group is responsible for providing the overall leadership and guidance for the entire effort. The HRPEO maintained the Mission X implementation plan, coordinated planning sessions with the Mission X partners, and worked with Mission X partners to ensure that all aspects of the challenge were set up and implemented according to the Mission X plan. The HRPEO team tracked and compiled sets of metrics on the challenge and led the development of this Mission X Pilot Final Report. The HRPEO coordinated with other NASA offices as necessary, including the JSC Office of Education, the ISS Program, the Exploration Systems Mission Directorate, and the Office of External Relations to ensure success of the challenge.

The Mission X Partners were responsible for translation of the content if necessary, participating in the monthly teleconferences, supporting Mission X with necessary information on their national fitness policies, and providing content activity materials. The partners were also responsible for providing the development of various Mission X videos to more effectively communicate to the global Mission X community about on-going activities. Each partner developed their own Mission X partners, while creating their country challenge teams. They hosted a kick-off event, compiled data and tracked progress on the challenge teams, and organized the closing event for their competition. The partners provided their leader and student surveys and supported the development and review of the Mission X Final Report.

APPENDIX D: MEDIA COVERAGE

Austria

- Two APA press releases for Inflight call and final event
- An article in “Kinder Kurier” in February
- Two Articles in the Magazine of the Technisches Museum Wien
- A Web article via “ Der Orion” webpage
- Several Tweets on Twitter by Peter Habison

Belgium

Colombia

- http://www.cce.gov.co/web/guest/inicio
- http://www.cce.gov.co/web/mision-x-colombia/principal (micrositio)
- http://www.sedbogota.edu.co/index.php/noticias-destacadas/1461-despega-la-mission-x-2012.html
- http://www.elespectador.com/impreso/vivir/articulo-326627-ser-astronauta
- http://www.noticiascaracol.com/nacion/video-257586-astronauta-george-zamka-lanzomision-a-favor-de-la-salud-de-los-ninos
- http://www.canalrcnmsn.com/content/m%C3%A1s_de_500_estudiantes_tuvieron_la_portunidad_de_compartir_con_un_astronauta_de_la_nasa
- http://www.sedfacatativa.gov.co/node/201
- http://cmi.com.co/?n=76428
- http://www.cadenasuper.com/index.php?option=com_content&view=article&id=5123:facatativa-recibio-al-astronauta&catid=127:general
- http://www.mineducacion.gov.co/cvn/1665/w3-article-297593.html

The CCE created the microsite for MISION X COLOMBIA where all relevant information may be found:

- http://www.cce.gov.co/web/mision-x-colombia

Czech Republic

Czech Space Office website Mission X 2012:

- http://www.czechspace.cz/cs/vzdelavani/mise-x-trenuj-jako-kosmonaut

Elementary School „Mládí“, Prague - Black Moon team, Loca People team - info on the tasks:

- http://www.zsmladi.cz/view.php?cisloclanku=2012030003

Elementary School „Mládí“, Prague - Black Moon team, Loca People team- info on the closing ceremony Mission X in Prague

- http://www.zsmladi.cz/view.php?cisloclanku=2012050004

American Center of the U.S. Embassy in Prague - Closing Ceremony of Mission X 2012

- http://www.americkecentrum.cz/program/lecture/ vyhlaseni-vysledku-souteze-mise-x-trenuj-jako-kosmonaut
- www.ceskatelevize.cz/porady/10315711050-planeta-yo/212543118040001-planeta-yo/
- http://youtu.be/c8jFrNrxI-s
- http://youtu.be/HloSkeKjKFI

France

- http://www.cnes.fr/web/CNES-fr/9732-em-mission-x-2012-entraine-toi-comme-un-astronaute.php

Germany

Italy

- http://it.euronews.com/2012/02/09/missione-spazio-per-i-piu-giovani/
- http://trainlikeanastronaut.org/it/content/mission-x-euronews/020912
- http://www.raiscuola.rai.it/articoli/scuola-salute-il-progetto-mission-x-nelle-scuole-italiane/14220/default.aspx
- http://www.asi.it/it/educational/scuole/mission_x__allenati_come_un_astronauta__edizione_2012
- http://www.asitv.it/index.php?DLr=t6v3SRLh326MxiCavRYAk3bVuv944T
- http://www.asi.it/it/multimedia/fotogallery/mission_x__allenati_come_un_astronauta__edizione_2012_0
- http://www.altecspace.it/mission-x-allenati-come-un-astronauta-edizione-20122
- http://www.planetarioditorino.it/Progetti/mission_x.pdf
- http://www.esa.int/esaCP/SEMTTJ1PLFG_Italy_0.html
- http://www.esa.int/esaKIDSit/SEM0PXYW5VG_LifeinSpace_0.html
- http://www.esa.int/esaCP/SEMKL8KWZ0H_Italy_0.html
- http://www.esa.int/esaCP/SEMKL8KWZ0H_Italy_1.html
- http://www.esa.int/esaCP/SEMZIX1XFVG_Italy_0.html
- http://wsn.spaceflight.esa.int/?pg=mm&id=370
- http://www.forumastronautico.it/index.php?topic=16449.90
- http://newsspazio.blogspot.it/2012/04/mission-x-2012-completata-10300.html
- http://theworldoflove.altervista.org/scienza-e-tecnologia/17683/mission-x-2012-completata-10-300-studenti-coinvolti/
- http://www.marche.istruzione.it/news/2012/022012/allegati/missionX-2012_circolareMIUR.pdf
- http://www.ankon.us/index.php?option=com_content&view=article&id=611:mission-x-a-londra&catid=1:ultime&Itemid=101
- http://news.sportduepuntozero.it/2012/02/01/mission-x-allenati-come-un-astronauta/2703
- http://www.istruzioneveneto.it/wpusr/archives/13509
- http://www.nature.it/scienze/mission-x-sbarca-a-londra-6/
- http://www.ilrisveglio-online.it/cronaca-bianca/2012/05/03/la-2a-b-londra-mission-x
- http://pianezza.virgilio.it/notizielocali
- http://it.paperblog.com/mission-x-allenati-come-un-astronauta-854962/

Japan

- http://www.city.koriyama.fukushima.jp/pcp_portal/PortalServlet;jsessionid=3D06036E0AFDD6D15409D0E4562E38AD?DISPLAY_ID=DIRECT&NEXT_DISPLAY_ID=U000004&CONTENTS_ID=24746
- http://www.yac-j.or.jp/hq/info/2012/05/missionxinl.html
- http://www.mitsubishielectric.co.jp/me/dspace/spacekids/index2.html

Netherlands

Mission X in the Netherlands was promoted through the following media

- NSO website
- Ruimteschip Aarde website and twitter
- ESA website (Dutch pages and twitter)
- Media at the opening event http://jeugdjournaal.nl/item/336953-kinderen-praten-met-andre-kuipers.html (Jeugdjournaal)
- Conference at Leiden University

Portugal

The Mission X site in Portugal:

- www.cienciaviva.pt/projectos/missaox

A photo gallery of the event is available at:

- http://www.cienciaviva.pt/fotocatalogo/index.asp?accao=showcatalogo&pag=3&id_catalogo=577

A thorough video coverage of the event, including images of live conference with Andre Kuipers, at the IIS, is also available at:

- http://www.cienciaviva.pt/mediaplayer/index.asp?accao=showvideo&id_videofile=91

Mission X was subject to significant exposure to Portuguese media. Examples

- http://www.pavconhecimento.pt/media/objectos/1450_g_metro-2012-02-02.jpg
- http://www.pavconhecimento.pt/media/objectos/1454_g_cienciahoje-6-fev-2012.jpg
- http://www.ionline.pt/portugal/quem-quer-ser-astronauta-missao-x-ja-chegou-portugal
- http://www.cienciaviva.pt/mediaplayer/index.asp?accao=showvideo&id_videofile=93

Puerto Rico

- http://www.elnuevodia.com/entrenancomoastronautas-1184069.html
- http://www.wapa.tv/noticias/conciencia/nasa-busca-escuelas-interesadas_20120329212352.html

Spain

- http://www.esa.int/esaKIDSes/SEM9NXYW5VG_LifeinSpace_0.html
- http://www.cpjuanaguado.es/index.php/home/mision-x/581-mision-x-entrena-como-un-astronauta
- http://www.ceipleonardotorresquevedo.es/paginascambiantes/educacionfisica.html
- http://www.elmundo.es/elmundo/2011/12/22/ciencia/1324557744.html (this is one of the most popular newspaper in Spain)

Switzerland

- http://www.tageswoche.ch/de/2012_04/kultur/384434/
- http://www.visinfo.ch/news/newsdetail/article/live-blick-ins-weltall.html
- http://www.blick.ch/people-tv/baselbieter-schulkinder-diskutieren-live-mit-iss-astronaut-id1751507.html
- http://www.blick.ch/people-tv/baselbieter-schulkinder-diskutieren-live-mit-iss-astronaut-id1751507.html

- http://www.20min.ch/news/basel/story/14024216
- http://www.drs.ch/www/de/drs/nachrichten/regional/basel-baselland/320997.baselbieter-schueler-telefonieren-ins-weltall.html
- http://www.drs3.ch/www/de/drs3/sendungen/regional-diagonal/59751.bt10211258.html
- http://www.telebasel.ch/de/tv-archiv/&id=360370992
- Nadine Küng, BaselbietDas andere «fliegende» Klassenzimmer, Liestal I Sissacher Schüler waren bei einer Live-Schaltung zu einem Astronauten aufderiSS dabei; Volksstimme, Nr. 16 I Dienstag, 7. Februar 2012; 10
- Von BaRis Burkharot, Baselland, Live-Sendung aus dem Weltraum, Museum. BI Schüler sprechen mit einem echten Astronauten auf der Internationalen Raumstation, Freitag, 3. Februar 2012/az; 25
- Jonas Hoskyn, Basel, «Ist es wahr, dass man im, All schneller älter wird?», Freitag, 3. Februar 2012 / www.20minuten.ch
- Marc Schaffner, Baseiland, Anruf aus dem Weltall, BaselbieterSchulklassen kommunizierten live mit Astronaut Andre Kuipers
- Von Dina Sambar, Basel.Land, Direkter Draht zur Raumstation, Kinder löchern einen Astronauten im Orbit mit Fragen - über eine Live-Schaltung aus Liestal, BaslerZeitung I Freitag, 3. Februar 2012 I Seite 32

United Kingdom

- http://www.bis.gov.uk/ukspaceagency/news-and-events/2011/Nov/fit-for-space-uk-students-invited-to-have-a-go-at-astronaut-training
- http://www.bis.gov.uk/ukspaceagency/news-and-events/2012/Mar/mission-x-2012-uk-has-landed
- http://www.bis.gov.uk/ukspaceagency/news-and-events/2012/May/mission-x-london-2012-international-event
- http://www.thisisplymouth.co.uk/Primary-school-pupils-space-mission/story-16105306-detail/story.html
- http://www.hertsandessexobserver.co.uk/Education-and-Training/News/Students-mission-to-Mars-19042012.htm
- http://www.gisburn.lancsngfl.ac.uk/index.php?category_id=364
- http://www.harlowstar.co.uk/Archive/X-marks-the-spot-for-fitness-regime-19012012.htm
- http://www.hockerill.herts.sch.uk/pdf/enews4.pdf
- http://www.flickr.com/photos/spacegovuk/sets/72157629939891885/ (8900 Views, 75 blog entries)
- http://www.mountfitchet.essex.sch.uk/news/detail.html?news_id=34
- http://www.kingswinford.dudley.sch.uk/parents/files/newsletter-spring-2012.pdf
- http://www.malverngazette.co.uk/news/9541650.Mars_Rover_drops_in_at_school_to_see_Evie/
- http://www.woottonbassett.wilts.sch.uk/Newsletters/March%202012.pdf
- http://www.planet-science.com/categories/parentsteachers/science-resources/2011/11/mission-x-train-like-an-astronaut!.aspx
- http://www.tes.co.uk/teaching-resource/Mission-X-Train-Like-An-Astronaut-6113155/ (2000 views)
- http://www.katherinesemar-jun.essex.sch.uk/pages2011/missiox%20x%20landing.htm
- http://www.star.newham.sch.uk/edvisits.html#missionx
- http://www.cumberland.org.uk/87/the-headteachers-blog
- http://www.grange.newham.sch.uk/visits.html
- http://www.wildslodgeschool.co.uk/story/MissionXthesequel
- www.newham.gov.uk/NR/rdonlyres/024D5535-5B2D-4284-9876.
- http://www.malvernstjames.co.uk/preparatory/latest-news/visitor-to-malvern-st-james-is-out-of-this-world
- http://www.qmul.ac.uk/media/news/items/se/51940.html
- http://www.newham.gov.uk/News/2011/December/StarmantoinspireNewhamsyoungsters.htm

United States

Dunkirk Observer newspaper:

- *http://www.observertoday.com/page/content.detail/id/570295.html*

Jamestown Post Journal newspaper:

- *http://www.post-journal.com/page/content.detail/id/601539/Students-Wrap-Up-Mission-X-2012-Program.html?nav=5057*
- *http://www.post-journal.com/page/content.detail/id/597492/Afterschool-Program-Students--Train-Like-An-Astronaut-.html?nav=5209*
- *http://www.post-journal.com/page/content.detail/id/599958.html*

Sharon Patch newspaper:

- *http://sharon.patch.com/articles/sharon-elementary-students-spell-fitness-n-a-s-a*

Boston Globe newspaper:

- *http://www.bostonglobe.com/metro/regionals/south/2012/03/28/sharon-pupils-train-like-astronaut-with-nasa-fitness-program/Mln1ooV3PnBwY0aASh4BqL/story.html*

Sun Chronicle newspaper:

- *http://www.thesunchronicle.com/articles/2011/12/27/news/10712596.txt*

Wicked Local newspaper:

- *http://www.wickedlocal.com/sharon/news/education/x1341770046/Heights-students-Train-like-an-Astronaut*

APPENDIX E: WEBSITE & SOCIAL MEDIA PARTICIPATION DATA

Mission X Website Participation Data

January 16, 2012 – March 16, 2012

Registered User Overview: *(These numbers are based on the 2012 Challenge Year, not the 6 week challenge time period.)*

- Number of 2012 Team Leads: 298
- Number of 2012 Country Leads: 31 (Includes 29 IWG)

Visitor / Usage Overview

- 57,485 Visits
- 10,069 Unique Visits
- Average 821 Visits / Day
- Average Time on Site 00:29:26
- Total Page Views: 157,904
- Top Keyword/Key phrase: missionx
- Most popular Download: MissionX_Overview_Flyer.pdf (174 downloads)
- 969 Visits referred from Facebook
- 72 Visits referred from www.nasa.gov
- Top Activity download: Agility Astro-Course (English)
- Top Ten Unique Visits by Country:

USA: 2,190	Columbia: 709
Germany: 655	Netherlands: 636
Spain: 621	UK: 584
Italy: 582	Belgium: 403
Austria: 399	Portugal: 359
Japan: 348	

Blog Post Overview: *(These numbers are based on the 2012 Challenge Year, not the 6 week challenge time period.)*

- Total Blog Posts: 740
- Posts by Country:

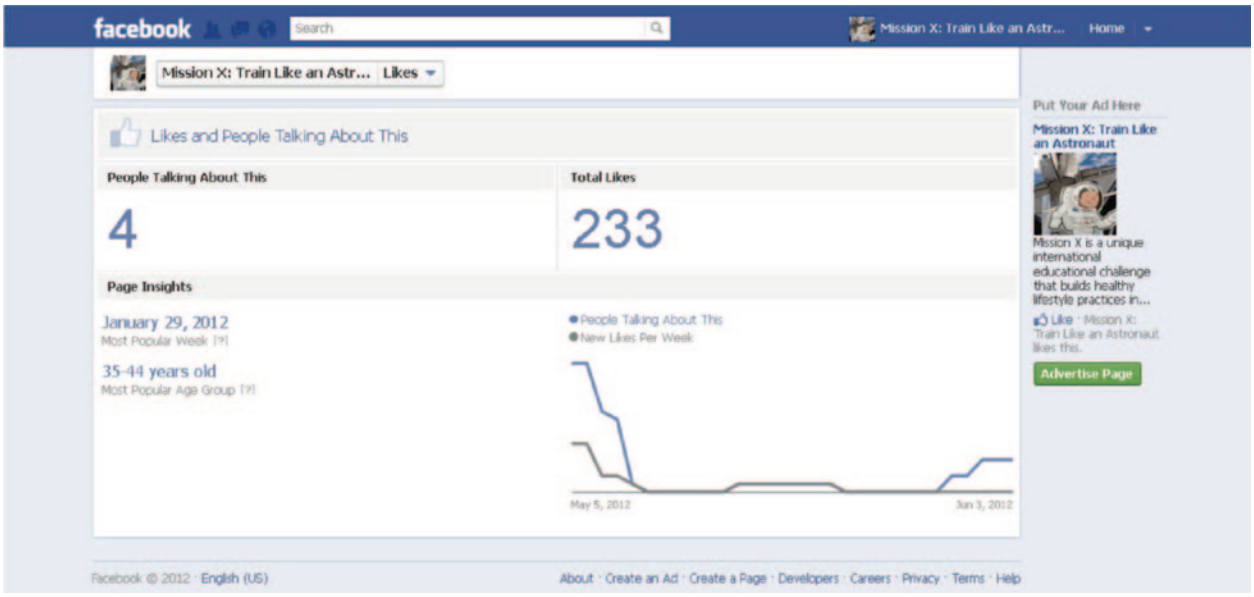
Austria: 109	Belgium: 70
Columbia: 65	Czech Republic: 21
Denmark: 0	France: 29
Germany: 19	Italy: 56
Japan: 2	Netherlands: 19
Portugal: 65	Puerto Rico: 1
Spain: 44	Switzerland: 0
UK: 75	USA: 23

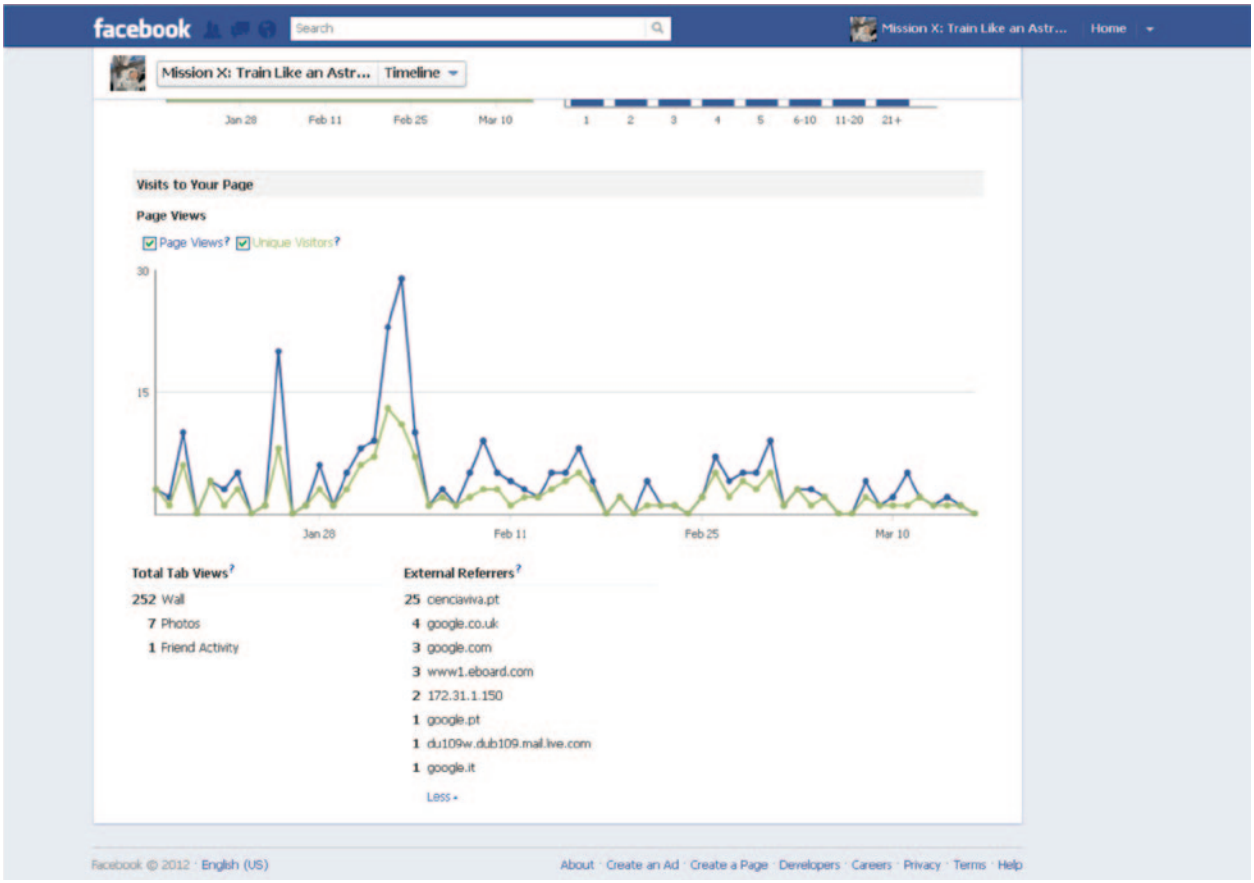
- Monthly Post Activity
  May 2012: 36
  April 2012: 30
  March 2012: 309
  February 2012: 180
  January 2012: 41
  November 2011: 2
  October 2011: 2

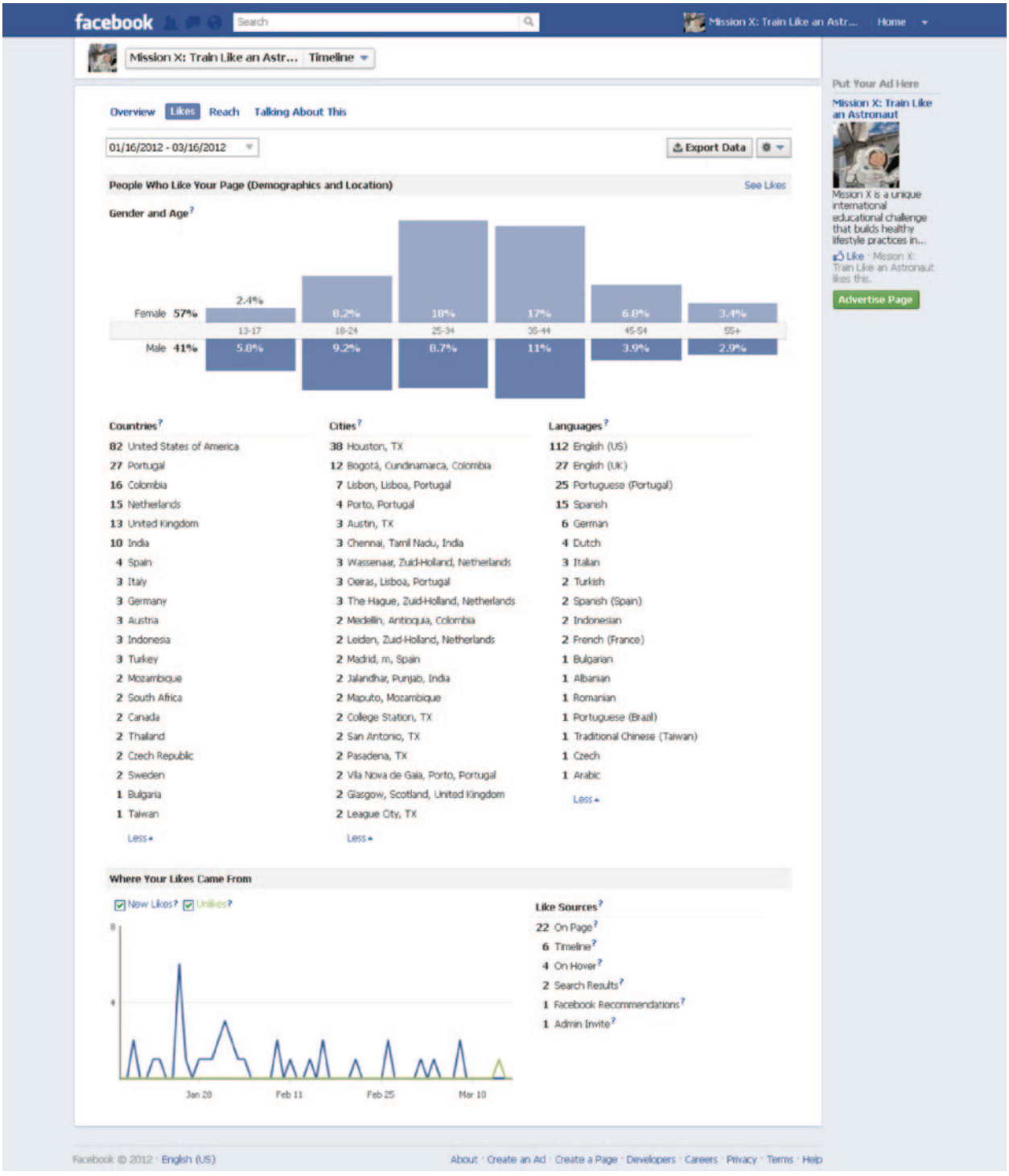
Social Media Participation Data

January 16, 2012 – March 16, 2012

Facebook



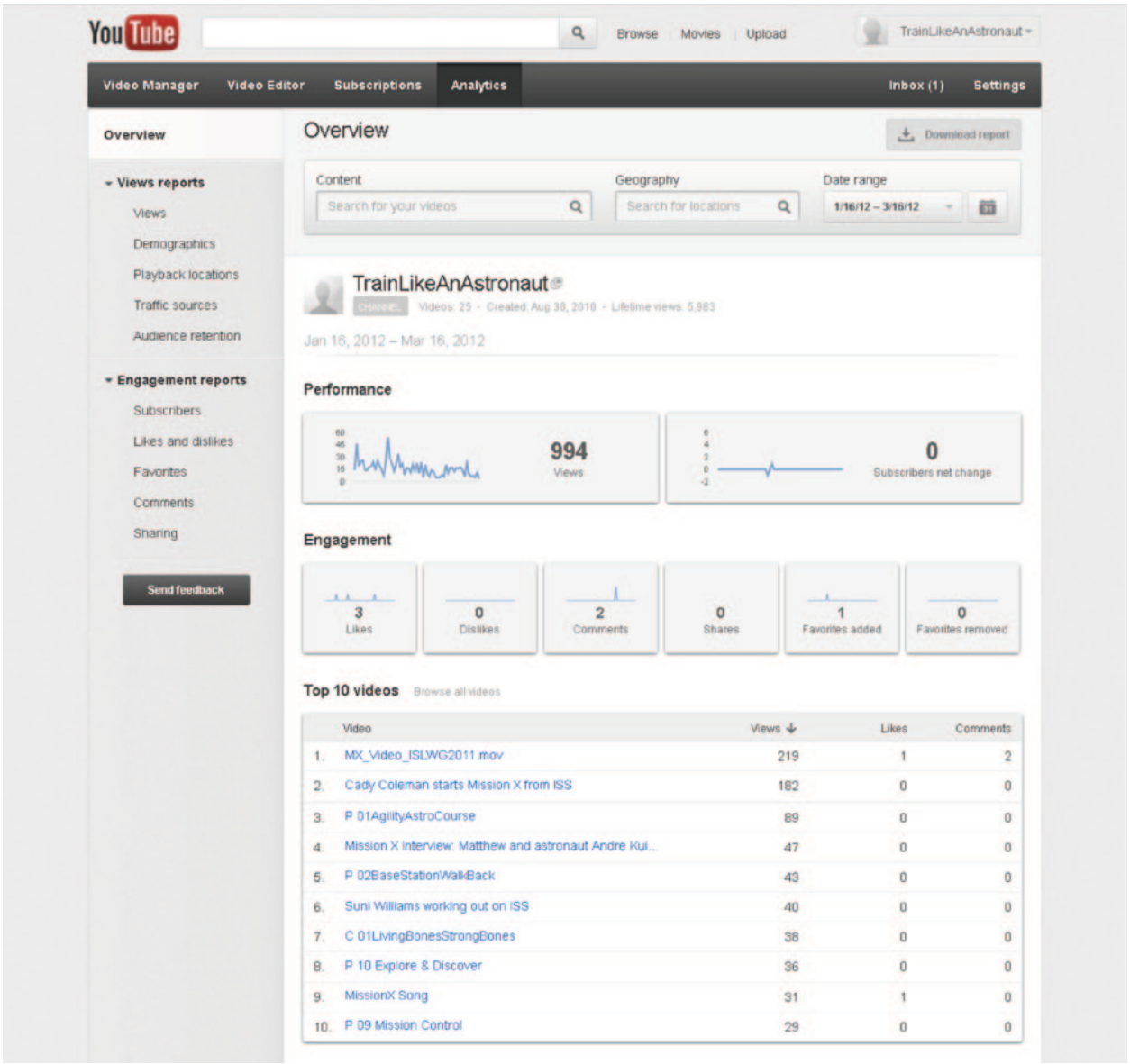


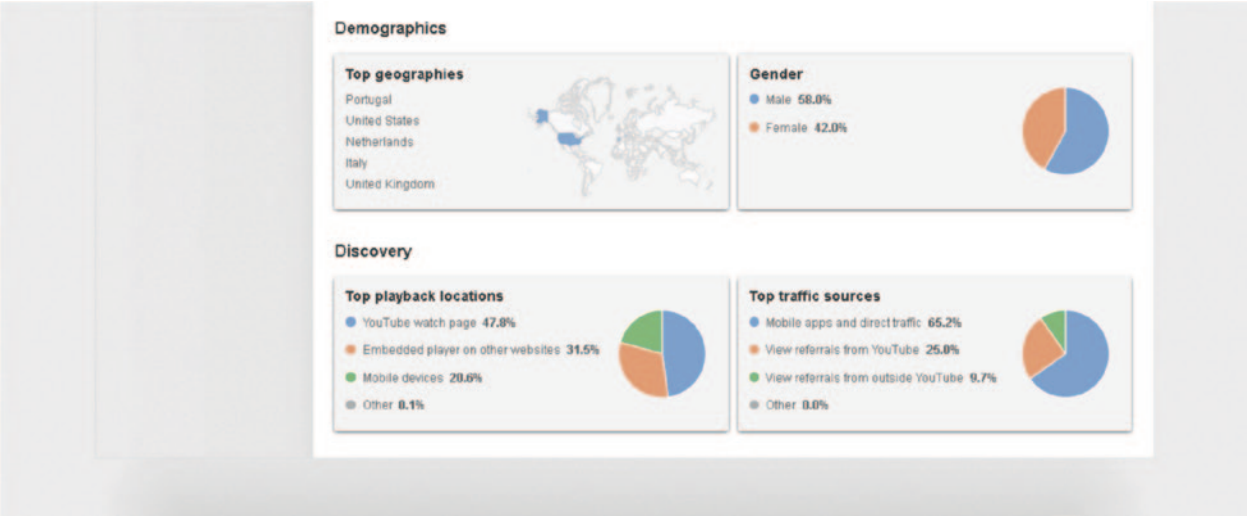

facebook
Search
Mission X: Train Like an Astr...
Home
Mission X: Train Like an Astr... Timeline
Overview Likes Reach Talking About This
01/16/2012 - 03/16/2012
Export Data
People Who Like Your Page (Demographics and Location)
See Likes
Gender and Age
Female 57%
Male 41%
2.4%
8.2%
18%
17%
6.0%
3.4%
5.0%
9.2%
8.7%
11%
3.9%
2.9%
13-17
18-24
25-34
35-44
45-54
55+
Countries
82 United States of America
27 Portugal
16 Colombia
15 Netherlands
13 United Kingdom
10 India
4 Spain
3 Italy
3 Germany
3 Austria
3 Indonesia
3 Turkey
2 Mozambique
2 South Africa
2 Canada
2 Thailand
2 Czech Republic
2 Sweden
1 Bulgaria
1 Taiwan
Less
Cities
38 Houston, TX
12 Bogotá, Cundinamarca, Colombia
7 Lisbon, Lisboa, Portugal
4 Porto, Portugal
3 Austin, TX
3 Chennai, Tamil Nadu, India
3 Wassenaar, Zuid-Holland, Netherlands
3 Oeiras, Lisboa, Portugal
3 The Hague, Zuid-Holland, Netherlands
2 Medellin, Antioquia, Colombia
2 Leiden, Zuid-Holland, Netherlands
2 Madrid, m, Spain
2 Jalandhar, Punjab, India
2 Maputo, Mozambique
2 College Station, TX
2 San Antonio, TX
2 Pasadena, TX
2 Vila Nova de Gaia, Porto, Portugal
2 Glasgow, Scotland, United Kingdom
2 League City, TX
Less
Languages
112 English (US)
27 English (UK)
25 Portuguese (Portugal)
15 Spanish
6 German
4 Dutch
3 Italian
2 Turkish
2 Spanish (Spain)
2 Indonesian
2 French (France)
1 Bulgarian
1 Albanian
1 Romanian
1 Portuguese (Brazil)
1 Traditional Chinese (Taiwan)
1 Czech
1 Arabic
Less
Where Your Likes Came From
New Likes
Unlikes
8
4
Jan 20
Feb 11
Feb 25
Mar 10
Like Sources
22 On Page
6 Timeline
4 On Hover
2 Search Results
1 Facebook Recommendations
1 Admin Invite
Put Your Ad Here
Mission X: Train Like an Astronaut
Mission X is a unique international educational challenge that builds healthy lifestyle practices in...
Like · Mission X: Train Like an Astronaut likes this.
Advertise Page
Facebook © 2012 · English (US)
About · Create an Ad · Create a Page · Developers · Careers · Privacy · Terms · Help

APPENDIX E: WEBSITE & SOCIAL MEDIA PARTICIPATION DATA...continued

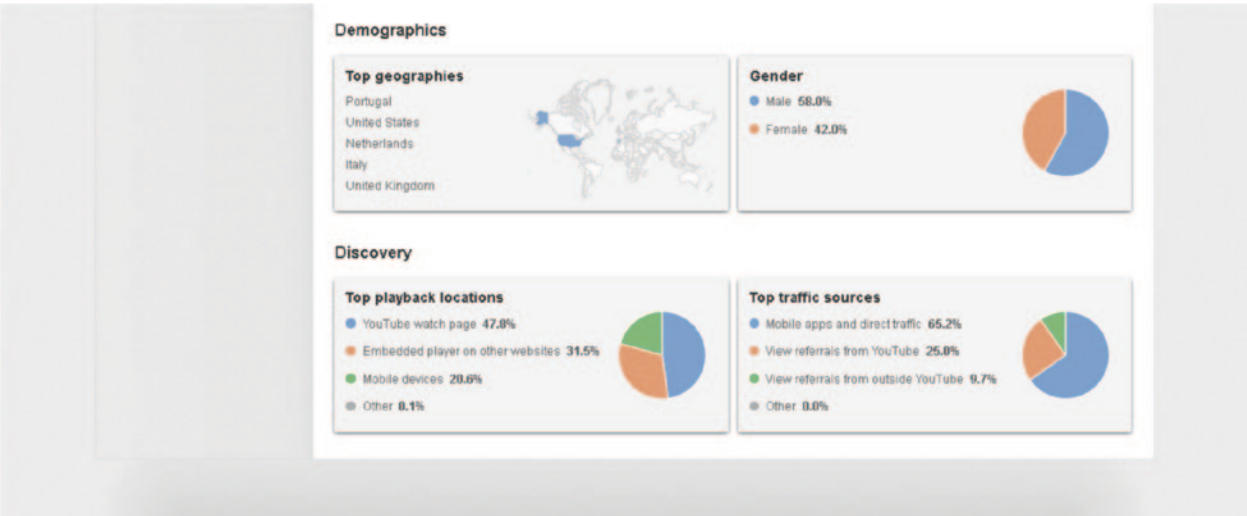
Twitter

You Tube

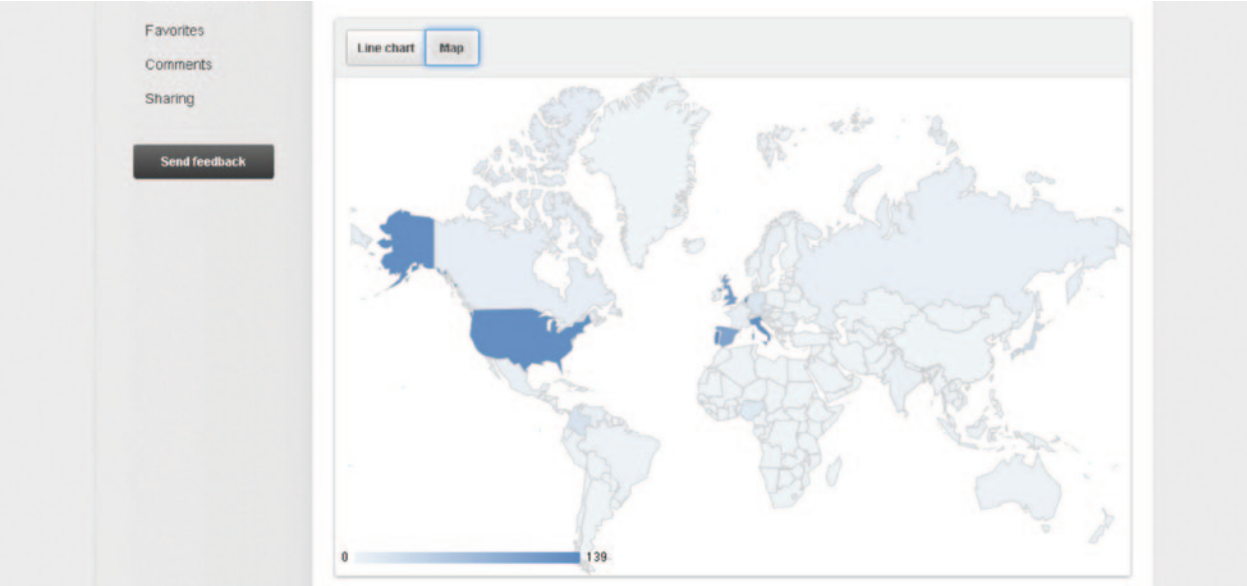




You Tube Daily Views



You Tube Geographic View Map (based on views)



You Tube Geographic Breakdown (by Views)

	Geography	Views ↓
1.	Portugal	139
2.	United States	132
3.	Netherlands	131
4.	Italy	130
5.	United Kingdom	117
6.	Spain	103
7.	Japan	31
8.	Colombia	22
9.	Austria	20
10.	Germany	18
11.	Nigeria	14
12.	Czech Republic	13
13.	Belgium	11
14.	Switzerland	9
15.	Canada	9
16.	Romania	7
17.	France	7
18.	Russia	7
19.	Venezuela	6
20.	Puerto Rico	5
21.	Thailand	5
22.	Hong Kong	5
23.	Mexico	5
24.	Sweden	5
25.	Slovenia	4

26.	India	4
27.	Australia	3
28.	Brazil	3
29.	Norway	3
30.	Indonesia	3
31.	Hungary	2
32.	Israel	2
33.	Peru	2
34.	Taiwan	2
35.	Ireland	2
36.	Algeria	1
37.	Costa Rica	1
38.	Monaco	1
39.	Saudi Arabia	1
40.	New Zealand	1
41.	Mozambique	1
42.	Lithuania	1
43.	Mongolia	1
44.	Bolivia	1
45.	Unknown region	1
46.	Ecuador	1
47.	Denmark	1
48.	Poland	1

APPENDIX F: TERMS OF REFERENCE (TOR)

MISSION X: TRAIN LIKE AN ASTRONAUT

Terms of Reference

Increasingly sedentary lifestyles among children and adolescents, combined with unhealthy diets, are two of the most significant risks that may lead to the onset of chronic adult health issues. International research demonstrates that physical inactivity and poor eating habits among children can lead to major non-communicable diseases, including high blood pressure, cardiovascular disease, and type-2 diabetes. Organizations worldwide recognize this problem and advocate increased physical activity and healthier diets for young people in order to promote healthier societies.

In light of these increasingly global health issues, and seeking to take actions to help address them, the Mission X: Train Like an Astronaut (MX) Multi-Year Campaign aims to encourage proper exercise and nutrition starting at an early age. This concept was developed by members of the International Space Life Sciences Working Group (ISLSWG) and is an effort of the space agencies and organizations involved in the project to encourage healthy, active lifestyles among children. Using the unique example of space explorers, the Participating Entities seek to motivate and educate young people worldwide that good fitness and nutrition are life-long endeavours.

These Terms of Reference establishing the MX Multi-Year Campaign outline the parameters for the activities and the anticipated role of each Participating Entity.

1. PURPOSE AND SCOPE OF ACTIVITIES

1.1 Purpose

The purpose of the MX Multi-Year Campaign will be to demonstrate to children the value of exercise and nutrition by

- Developing a multi-national health and fitness challenge that each Participating Entity will implement within its own region;
- Maintaining and enhancing an activity website to provide student participants a forum for exchange and an online database for activity-related materials; and
- Performing international outreach opportunities with astronauts and to increase awareness regarding the importance of physical fitness and good health.

1.2 Scope of Activities

The MX Multi-Year Campaign, also referred to as the activity, will focus on accomplishing the health and fitness challenge outlined in these Terms of Reference. Upon completion of the multi-year campaign, the Participating Entities may choose to extend MX by repeating or adapting the project in the future.

2. PARTICIPATION GUIDELINES AND IMPLEMENTATION PROCEDURES

2.1 Participating Entities

Participation in the activity is open to government space agencies or organizations delegated by space agencies with established educational or outreach programs for children, and the ability meet the responsibilities outlined in paragraph 2.3 (hereinafter “Participating Entities”).

Space agencies or organizations that previously contributed to the planning and development of the Mission X: Train Like an Astronaut pilot project can become Participating Entities at any time through an executive level acceptance of these Terms of Reference by a letter addressed to the Director of the Space Operations Division, NASA Office of International and Interagency Relations.

2.2 Responsibilities of the Chair

NASA will serve as the Chair for the activity. The European Space Agency (ESA) has offered to support the Chair as the primary point of contact for participating ESA nations. The Chair will contribute to the Challenge by

- Providing health and fitness educational materials to be used during the activity;
- Coordinating monthly teleconferences, and additional planning sessions as needed, with the Participating Entities;
- Drafting and maintaining the MX planning documents;
- Managing the MX website, www.trainlikeanastronaut.org;
- Supporting the Participating Entities to ensure that the Challenge is properly implemented;
- Compiling data on the activity and leading the development of an annual report; and
- Fulfilling the responsibilities of a Participating Entity as outlined in paragraph 2.3.

2.3 Responsibilities of Participating Entities

Participating Entities will contribute to the development and implementation of the activity by

- Providing health and fitness educational materials to be used during the activity, including information on national fitness policies;
- Taking part in monthly teleconferences and additional planning sessions;
- Providing regular feedback on MX planning documents;
- Sharing agency and organization web links and online content for the MX website;
- Sharing available video content for the MX promotional video;
- Working with domestic organizations as necessary that will help organize and host the activity;
- Conducting activities to implement the activity within their country, including hosting a kick-off event, compiling data and tracking progress on the Challenge teams, and organizing the closing event for their domestic competition;
- Supporting the development and review of an annual report; and
- Working with the Chair and other Participating Entities to ensure success of the project.

3. SCHEDULE

The Participating Entities plan to implement the activity along the following annual schedule between 2012 and 2014:

- Pre-Challenge Phase: Spring to December
- Challenge Phase: 6 week period between January and March
- Post-Challenge Phase: Spring to Fall

4. STATUS OF TERMS OF REFERENCE AND RESOURCES

The adoption of these Terms of Reference will not create any legal obligations on the part of Participating Entities in the activity. Unless other arrangements are made, each Participating Entity will bear the costs of discharging its responsibilities under this Arrangement, including travel and subsistence of its own personnel and transportation of all goods for which it is responsible. The amount of resources provided for any particular activity may vary among Participating Entities.

5. EXCHANGE OF DATA AND GOODS

Materials developed for the activity are made available on the MX website, www.trainlikeanastronaut.org, including images and educational guides that are available worldwide without restriction as to their use or redistribution.

6. RELEASE OF INFORMATION ABOUT THE PROJECT

Participating Entities may freely release information on the activity as deemed appropriate.

7. MODIFICATIONS

These Terms of Reference may be modified by the Participating Entities by consensus.

8. WITHDRAWAL

Any Participating Entity may withdraw from the activity
at any time by providing written notification to the Director of the Space Operations Division, NASA Office of International and Interagency Relations.

9. ESTABLISHMENT

These Terms of Reference are effective as of October 1, 2011.

National Aeronautics and Space Administration

Lyndon B. Johnson Space Center

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